VOL. XXXI. No. 3. JUNE, 1907. $3.00 per Annum. Single Copies, 25 Cents.

AMERICAN VETERINARY REVIEW.

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The AMERICAN VETERINARY REVIEW is issued on the 1st of each month. *Manuscript and copy for insertion should be received by the 20th of the preceding month* to insure insertion in the next month's number. *Volume commences* with April number.

Communications relating to business (subscriptions, advertisements, and remittances) should be addressed to

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509 West 152d St., Boro. of Manhattan,
NEW YORK CITY.

Communications for publication or in relation thereto, should be addressed to

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710 East Second Street, Boro. of Brooklyn,
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European Exchanges, books for review and personal letters should be addressed to
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AMERICAN VETERINARY REVIEW.

JUNE, 1907.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, FRANCE, April 15, 1907.

FRENCH CRITICISM ON AMERICAN VETERINARY CIVIL SERVICE EXAMINATIONS.—On page 1255, of our last volume, I wrote at the end of my remarks on the Veterinary Civil Service Examinations: "I fear and I know that the above remarks will not be received in the spirit in which I make them, and probably the new program will not be entertained as an improvement by some of the candidates. . . ."

The March REVIEW has brought confirmation of my fears, and I am taken to task, not by one of the future candidates, but by Dr. D. Arthur Hughes, who replies to my criticism.

Let us look rapidly at the principal part of the subject. Prof. Leclainche, probably misinformed or unacquainted with the true state of affairs, made in print a statement which I read. Any one who loves the American veterinary profession as I do, and has the idea that I entertain of its work, would do what I did: namely, obtain the proper information and reply. I wrote to Washington, and the answer I extracted from the "Manual of Examinations," revised to July 1, 1906. It was the *official confirmation* of Prof. Leclainche's assertion. I bowed to the official notice, expressed my regrets and made comparisons with what was done in some parts of Europe. In his reply Dr. Hughes says: "If Dr. L. had seen sets of questions set during the last five years by the Commission, he would know that they range over all these subjects (sanitary science and sanitary police, sanitary pathology and medicine, meat inspection, micro-

scopy and microbiology) in the most practical manner. In addition, they embody questions on the United States meat inspection laws and regulations, differential diagnosis of contagions, . . . etc."

It is very gratifying for me to believe Dr. Hughes, but his assertion is not an official statement. At least, I believe it is not in print; or, if it is, I have not seen it, and if it does not exist in print, I wonder how others can know of these requirements? How can a candidate know what questions are likely to be put to him? Would it not be proper that they should receive an *official* existence and be made accessible?

It goes of itself that I do not mean the questions by themselves, but at least the subjects relating to the position.

Conclusion: For the present, there seems to be, then, an official program of examinations, and one which, I suppose, is such only at the time of the examination! But, perhaps, after all, when we take into consideration the requirements for matriculation to our veterinary schools and the deficiency and differences in the curriculum of the various colleges, that until those are made what they should be, the official program and . . . the other, are the only justifiable means.

* * *

I have no need nor any desire to consider any other part of my critic's reply. I have no wish to find fault with the mode of selection or of appointment as carried on in the States. It may seem strange to me that one would have to run for a position of veterinary inspector, without knowing the entire list of subjects he may be examined upon; it may appear queer that he should get his admission to a veterinary inspectorship and yet not to be a permanent appointee until after six months' probation; but, as Dr. Hughes remarks, "if this mode of examination and appointment is agreeable, if it seems to work better than any other method, if the results are satisfactory to all concerned," I am sure it would be very improper for me not to be satisfied also, especially when it has not entered into my mind

to offer European methods to replace those of America.

I have been long enough connected with the American veterinary profession to know its value, to appreciate its work, but also to calculate its needs and measure its deficiencies. I do not ask America to "take bodily French or Italian methods for the choice of men for the federal service," but I accept willingly as evidence of the propriety of my article, the very last paragraph of Dr. Hughes' rejoinder: "*Let us by all means adopt, in so far as we may, European standards, but let us adapt them to American conditions.*" Veterinary progress and proper reforms are my objects, no matter what the means used, so long as the results are obtained ! !

* * *

THE FACULTIES AND EXAMINING BOARDS.—When a man receives a book which he knows is full of subjects which are interesting to him, he rapidly glances over the leaves, promising himself to make another examination when he will give all his attention to the section which commands his greatest interest. He may postpone looking over the others, but that one he reads and rereads until he is satisfied, or perhaps disappointed.

This is what happened with me when the report of the 43d annual meeting of the A. V. M. A. came to me some time last month. The date of the meeting was far off, and many points I wanted information upon, and among them were: What progress had been made in the reforms of veterinary education? What proposals were offered? What was to come out of the resolutions adopted at the meeting of 1905 in relation to the Association of Veterinary Faculties? Had it not been proposed for this association to work with the Examining Boards? And if so what had been done in 1906?

All these questions were of great interest to me, and of course I looked carefully for their answers in the report of the meeting of 1906.

If we read over some of the minutes of the 1905 meeting, at page 131 and following, we find the eminent reporter on the

question, "The Schools," Dr. G. R. White, of the Committee on Intelligence and Education, stating that a reorganization of the Association of Veterinary Faculties was recommended by several of the most important veterinary schools in America, and mentioning the names of Prof. Hughes, of Chicago; G. A. Scott, of the McKillip College; Prof. W. J. Coates, of N. Y.-A. V. C.; Prof. L. Pearson, of the Veterinary Department of the University of Pennsylvania; Prof. Nelson, of Washington State College; Dean David S. White, of the Ohio Veterinary College, and Prof. Law, of the New York State Veterinary College, all endorsing the same suggestion.

Finally, several proposals were made, and I suppose adopted, relating to the Association of Veterinary Faculties, and to the State Examining Boards.* It was then proper for me to look into the report for 1906 for what had been done in that direction. Let us see. The table of contents refers us to page 397 for the Association of Veterinary Faculties and Examining Boards of North America.

Is this the first meeting of that body since 1905? I do not know. At that meeting there were 8 colleges represented, 10 State Veterinary Boards, 2 representatives of the A. V. M. A., and some visitors. There was much work done, says the report at page 398, and it seems that a pretty general agreement was entertained. My readers are referred to page 398 of the report for more information.

Called to order on August 20, the day before the general meeting, at 9 o'clock P. M., the meeting adjourned at 11.45 P. M., action on the work done being postponed until the report of the Committee on Intelligence and Education, which was to be read the next day, was presented to the Association.

The general meeting opened August 20, in the morning. On August 21 the Committee on Intelligence and Education read its report, which was adopted. And on August 23, at the morning session, the Committee on the Association of College Fac-

* See Report of Meeting, 1905, Committee on Intelligence and Education, pages 163 and 164, Suggestions 1, 2, 13, 20.

ulties reported "PROGRESS." Nothing after!! Nothing more!!

Let us hope that at the next meeting that progress will bring us to something. A pregnant condition of two years' duration will no doubt give us a brilliant delivery! Our esteemed friend, Dr. Hoskins, will see to that.

* * *

But if I was disappointed in my expectations, as I hoped to find something of value on the question of the solution of veterinary educational reforms, I, however, observed some points of rather great interest, and as long as the Veterinary Examining Boards are coming to the front, as long as it is suggested that "the entrance requirements and the course of study in the colleges could be best controlled by the various States Boards," it may not be out of place to examine this question of the Veterinary Examining Boards.

Dr. C. J. Marshall, of Philadelphia, was the chairman of the Committee on Intelligence and Education in 1905, and it is he who enlightens us in relation to this subject.

The Doctor wrote a large number of letters, he received a great number of answers, and out of over half a hundred of inquiries he found that 22 states have laws establishing veterinary boards. The number of members in each of these boards varies: in eight of them there are 5 members, in two there are but 4 members, and in six the number is reduced to only 3. Why such a difference? Among the 22 states that have boards we find that 6 declare that the law has no provision for recognizing licenses from other provinces or states, 4 positively declare that they do not recognize any license from any other board. One, that of New York State, declares, besides, that the candidate must have a preliminary education equivalent to at least 48 counts, or as much as is required in a high school in four full years.

* * *

The information given by Dr. Marshall is most valuable, as it shows how much general reform or revision of the laws imposes itself to modify these organizations created by law, and

in which certainly the spirit, the principal object of their creation, has been overlooked and modified by the wording of the text of the law. What was the object of the law? To protect the practice of veterinary medicine by preventing ignorant and unworthy men from obtaining a license. How was such a result to be reached? It seems to me, in the spirit of the legislator, by an examination of credentials of good moral character, of respectable social standing, and of proper and sound veterinary education as vouched for by the best evidence—*the diploma of a respectable and recognized veterinary institution.*

Instead of that, what have these boards done?

Complying with the letter of the law, their members, 5, 4, or even 3 in number, have undertaken the task of examining in all the branches of veterinary education, a man whose diploma asserts that he had already passed such an examination and that in a satisfactory manner, and, above all, not before a board of 3, 4, or 5 members (who, we may suppose, must have been more or less rusty), but before a whole faculty of veterinary teachers.

Is not that nonsense, and is it not a wonderful surprise to see such good and learned men as those that are on the Boards of Veterinary Examiners convinced that they are doing proper and good work, which, if good (I grant that the intention is good) is, however, the positive evidence of the deficiency of the education, which *all* our veterinary schools pretend to give, and of the *low appreciation*, in the estimation of their professional brethren, of the diploma that these schools deliver?

Are we still in the time of the Jennings and McClure diploma mills?

* * *

In reading the above remarks, I hope that no one will for a moment think that I intend to address any blame to the worthy gentlemen who have filled the position of veterinary examiners, and I certainly reject any idea of professional criticism on my part towards my *confrères.* The work of Dr. Marshall has struck me as exposing great deficiency in the text of the law

and in its application. It has seemed to me that there is something wrong in the *debasement* and in the *ignoring* of the diploma granted by such schools as those spoken of in the recommendations offered by the Committee—section 2, page 136, of the report. It has looked to me wrong for such small numbers of gentlemen to assume the duties of an examination in ALL the branches of veterinary education. It has appeared wrong to me to refuse to a man who applies for a license to recognize the license that he has already won by another examination before another board. And, finally, it has appeared to me an unjustifiable assumption, even if authorized by the law, to refuse a license and reject a man to six months hence, because . . . . he has failed before the 3, 4, or 5 gentlemen who constitute the board and have quizzed him, unsatisfactorily, for them.

I know that at its meeting the Association of Veterinary Faculties and Examining Boards has already taken those reforms into consideration. I feel sure that the excellent work of Dr. Marshall will bear fruit, and that the valuable suggestions made by the Committees on Intelligence and Education in 1905 at Cleveland, and in 1906 at New Haven, will be of great benefit to Dr. Hoskins and his worthy colleagues. If by my remarks I have helped to call attention to the state of affairs, and if I have assisted in having it modified, I will be well rewarded!

* * *

INTERNATIONAL ASSOCIATION AGAINST TUBERCULOSIS.—Many of our friends who are interested in the subject of tuberculosis must know that there is an International Association Against Tuberculosis, whose headquarters are in Berlin. It holds yearly meetings. The last gathering of the Association was held in 1906 and the next is to take place at Vienna September 19, 20 and 21 of this year, and a general call has been issued for all kinds of works which may have been or will be elaborated until then. A number of very important questions will be treated at the Vienna meeting, but the program of the

special questions which are principally calling for attention at present are presented in the call that has been made by the General Secretary, Dr. Parmwitz, which reads as follows:

"INTERNATIONAL ASSOCIATION AGAINST TUBERCULOSIS,
"BERLIN, October 27, 1906.

"The question of the channels of entrance of tuberculous infection has, this year, concentrated the greatest interest at the International Conference. The extensive and valuable discussions that have followed the reading of the papers on this subject have thrown a great deal of light upon the differences of opinion, but without coming to a final conclusion. Taking into consideration the vast importance concerning the question of the channels of penetration of tuberculous infection, the Committee has decided to make it the principal object of the order of the day for the coming meeting and to have the question brought to the attention of all, to be studied in all the countries belonging to the International Association.

"Indeed, the object will be to solve, by means of experimentation, of clinical and of anatomo-pathological observations the following questions:

"*A—Tuberculosis of Inspiration.* (1) Experiments excluding as much as possible infection through the tractus intestinalis. (2) Observations relating to the entrance of minute substances into the lungs (anthracosis, etc.). (3) Clinical and anatomo-pathological observations relating to primitive tuberculosis of the superior respiratory organs or of the bronchia.

"*B—Tuberculosis by Ingestion.* (4) Experiments excluding as much as possible the organs of respiration: (a) With bovine tuberculosis (milk, butter, etc.); (b) With human tuberculosis (expectoration, cultures, etc.). (5) Clinical and anatomo-pathological observations of primary intestinal tuberculosis. (6) Experiments and observations: upon the penetration of bacteria through the mucous membrane of the intestine.

"*C*—(7) Experiments and observations upon the development of pulmonary tuberculosis, through other channels than inspiration and ingestion.

"*D*—(8) Determination of the smallest quantity of bacilli that a tuberculosis by inspiration may engender in comparison with a tuberculosis of intestinal origin and researches upon the following point, namely: if the minimal number of bacilli exist also in the extensive sources of infection and under an appropriate form in the surroundings of man."

Those are important questions and will call for an immense amount of labor before they will be solved!

* * *

NEW TREATMENTS FOR GRANULAR DERMATITIS.—Every veterinarian has met with those cutaneous affections, which in summer are found on some part of the body of horses and are so rebellious to treatment—granular dermatitis, as it is sometimes called. It is essentially characterized by the presence in the centre of the lesions of small nodules with fibrous walls and containing a caseo-calcareous little mass. They are always accompanied by excessive itching, which is very disagreeable; and, with this, the persistency of the larvæ of the *Filaria irritans*, which are present, the wounds are constantly in a state of irritation, and their cicatrization is very difficult to obtain. Many indeed are the modes of treatment which have been recommended, some having given good results, while others have failed.

In a recent number of the *Annales de Bruxelles*, Prof. Lienaux has recalled some cases of granular dermatitis in which he first reviewed all the treatments recommended, such as: sprays of camphorated oil, dressings with tincture of iodine, surgical interference, etc., and suggests his treatment based on the efficacious and lasting action of agents which would destroy the larvæ in their deep situation. He recommends the use of an ointment made of equal parts of arsenious acid, pulverized juniperus, gum arabic and water in sufficient quantity to make a semi-soft paste. The wound is to be made thoroughly dry, otherwise the ointment will not stay, and a coating of the mixture is applied. This caustic paste will give rise to the formation of a thick dry scab, which will slough out slowly, but

under which the cicatrization will be complete. The itching subsides very readily.

I have also read lately of another mode of treatment advocated by an Army Veterinarian, Mr. Queraud, who in Algeria has had occasion to treat many cases of this disease. He recommends picric acid as a specific. It must be used in saturated alcoholic solution, using alcohol at 90° or 95°. The wounds are well cleaned and curetted so as to remove all the granulations, and after a little pressure to control the hæmorrhage they are coated over with a brush dipped in the picric solution. The itching stops immediately and cicatrization goes on slowly, but surely.

* * *

Finally, in the *Revue Generale*, I find another treatment from Mr. Ingueneau, also an Army Veterinarian. For him there are two indications: First, a prophylactic treatment: all wounds and sores are treated with a saturated solution (20–30 per cent.) of sulphate of copper. A first application is sufficient to stop the sero-bloody exudation which attracts flies and gives rise to the itching. A second application, covered with chart coal dust, forms a scab which isolates the wound from the surrounding air and allows a rapid cicatrization. Second, a curative treatment with three steps: (1) Thorough curettage of the wound to remove all soft and protruding granulations; (2) disinfection with sublimate and application of the cupric solution in every part of the wound; (3) cover the part with a compress moistened with the same solution and over it a wadding pad. If this is not realizable, apply a coating of charcoal powder. When the wound is left open, this dressing must be renewed four or five times a day. If the wound is covered, the dressing is changed every second day only. When the surface of the wound is smooth and when it is surrounded by a white border the application of ordinary means is sufficient to conclude the recovery.

* * *

Intestinal Manipulations Through the Vagina.—It is more than probable that when Charlier inaugurated his

method of castrating large female domestic animals by vaginal entrance into the abdominal cavity, he did not think that this could find its application for anything else or any other indication, and this proof may be found in the fact that, as far as my knowledge goes, no one has yet resorted to a similar operation when direct manipulations upon some abdominal organs were necessary. The incision of the flank has always been, I believe, the method resorted to, with all its dangers and the almost constantly fatal result that followed.

Lately, however, I have found in two Belgian papers, the *Echo Vétérinaire* and the *Annales de Bruxelles*, the record, published by Mr. Deghilage, veterinarian, of surgical interference through the vagina in some cases of obstruction of the intestines—in large females, of course. The first publication goes back to January, 1898, and refers to two cases, one of obstruction by a stercoral mass and the other of torsion of the large intestine at the pelvic curvature. In the second publication, more recent (January, 1907), again two cases are recorded, one of double adhesion of the floating colon on the left side of the anterior and inferior border of the pelvis, and the other a stercoral collection in the floating colon. These four cases were relieved by direct interference with the hand introduced into the abdomen, by an incision made on the upper wall of the vagina, made a little back of the neck of the uterus—in fact, as in ovariotomy. The stercoral occlusions were broken off and the intestinal circulation reëstablished; the twisted pelvic curvature could be returned into its normal position, and the double adhesion of the floating colon, subject of interference with the passage of fæces and cause of severe colics, were divided partly with a blunt curved tenotomy knife and partly with the hand. The first three cases had been treated first with the ordinary modes of treatment, but without benefit.

In the presence of such satisfactory results, is it not justifiable to accept the idea and to resort to an operation which, besides its possibility of being the only way to relieve an animal, will at any rate permit one to establish positively a diag-

nosis and decide as to the conduct to follow, should the disease be incurable?

* * *

FOOT-AND-MOUTH DISEASE IN EUROPE.—Although foot-and-mouth disease offers but little interest to American sanitary veterinarians, as far as its presence in the United States is concerned, a glance at its prevalence in Europe may not be without value, telling as it will how much watching is required to keep the scourge from American shores. These records are taken from the last sanitary bulletin published in the *Hygiene de la Viande et du Lait.*

In Belgium the disease prevails with great severity. In the first part of February, it existed in eight provinces, with 920 head of large cattle taken, 4 sheep, 5 goats, and 332 pigs. In Holland, it was observed in December, 1906, in Limburg, Holland, and in the Brabant. In Switzerland, in 1906, 1,108 head of large and 210 head of small cattle were diseased. In Italy foot-and-mouth disease has existed for two years, and nearly 10,000 cases are reported. In Austria, the principal infected regions are near the French frontier. In France, the bulletin of January, 1907, accuses the disease as existing in 2,154 establishments, spread in 1,012 little towns. In England, as has been the case for a good while, the country is entirely free from the disease.

* * *

ASEPTIC METHOD OF CASTRATION.—It is likely that the mode of castration that has for years prevailed with American operators, is yet the one which is generally in practice—the uncovered method with the ecraseur; of course, leaving aside those cases where a different method is required in the presence of some special indications. Among the different methods, the aseptic castration is one which our friends are familiar with as being the ideal operation, which allows the scroto-dartoic wound to cicatrize firmly by first intention in a few days, varying from 7 to 11. Notwithstanding the important and minute care that it requires, such as the disinfection of the field of operation, of

the instruments, of the hands of the operator and of his assistants, it certainly offers superior advantages over all old methods. It, indeed, avoids many of the accidents and complications of septicæmia, peritonitis, lockjaw, and especially botryomycosis of the cord, which necessitates another surgical operation.

As is known, the *modus operandi* of aseptic castration differs from the one adopted in the method of uncovered testicle, because in it the first scroto-dartoic incision corresponds only to the middle region of the great curvature of the testicle, and the second, that of the erythroid, fibrous and vaginal coats, to the posterior third of the same curvature. In this way the two incisions are not superposed. This mode of castration differs also because of the sutures of the scroto-dartoic wounds.

Prof. P. J. Oceanu, of the Veterinary School of Bucharest, has modified the ordinary operation and simplified it by a method which he describes as follows: First, according to the rules already known, the envelopes of the right testicle are divided. Once the organ is exposed, the efferent canal and the artery of the right cord are ligated with silk braided flat, about one centimetre and a half above the epididymis, and the right testicle is then amputated one centimetre below the ligatures. Then the left testicle, held with both hands, is squeezed towards the median septum, which separates the testicular sacs from each other, and pushed also towards the scroto-dartoic wound of the right testicle. The septum is incised through, as well as the fibrous and vaginal coats, the testicle is pushed through the incision of the septum and its efferent canal and the artery, being in their turn tied with ligatures, the testicle is amputated. The simple and unique scroto-dartoic wound is closed with sutures and covered with a coat of iodoformed collodion.

The operation is complete, only one incision and one suture of the envelopes being necessary.

* * *

RABBITS UNSEX THEIR HARE RIVALS.—As long as the question of castration is present, I will in conclusion of this "chronicle" relate an interesting and amusing item which has

found its way in the *Revue Scientifique*, and which is entitled "A new form of the struggle for life." Mr. J. Kunstler, in a recent relation before the Society of Biology, related a very curious fact on the subject of the rivality, yes, of the hate, that exists between hares and rabbits. These two species of animals are very much alike, and still they are very antagonistic to one another, and to such an extent that where there are many rabbits hares are very few. Is it because the prolific rabbits take all the food that may be found? No. It is because of more evident marks of hostility. In a large shooting property, where hares were getting very few, it was observed that a certain number of them which had been killed had, instead of good and sound testicles, simply a bluish cicatrix, evident marks that they had been castrated. One day in winter, while snow was on the ground, it was possible to discover that the operator which performed these castrations was no less than the rabbits. Screams were heard coming from a certain part of the field, and on approaching the spot from whence these cries came, what was seen but some ten rabbits pushing and biting a poor trembling hare, which was soon thrown down, and, notwithstanding its struggles, was held down and was being castrated by the rabbits chewing and biting its testicles. A few shots killed the rabbits, which were all males.

Is it by vital concurrence or by sexual rivality that rabbits castrate hares? In the first case, it would be a fact of prevision rather extraordinary. And in the second, it would be equally surprising, as it is a queer fact for an association of males constituting themselves as protectors of females against a single rival—probably not a dangerous one at that—while generally sexual fights take place between individuals of very nearly the same nature, and that castration has never been observed between rabbits.

However, the fact is quite interesting, and if not coming with the authority belonging to Mr. Kunstler would probably be considered as a pleasant joke from some gamekeeper.

A. L.

THE PROFESSION STEADILY GAINING.

Congress and most of the state legislative bodies having completed their work and adjourned, a retrospective glance at what has been accomplished by the veterinary profession through new and revised laws may be profitable at this time. It will disclose the fact that, although we did not meet with success in all cases, we have upon the whole fared well at the hands of the representatives of the people, and there is much reason for general satisfaction at the progress made in this direction. A survey of the winter's work makes plain the fact that the veterinary profession is securing a firm foothold among the people, and it is altogether likely that we are receiving recognition as rapidly as we are deserving of it. Indeed, it may be well for us to compare the advantages thus gained with the record of our own achievements in perfecting ourselves to take the high place that is so generously being provided.

In the Federal Government, the extended meat inspection service has gone into effect during the period under review, and through its operation veterinarians have gained hundreds of positions at increased salaries, and have had that office dignified by becoming "veterinary inspectors" instead of "meat inspectors," while the service has been made more desirable through added authority.

In the District of Columbia, Congress has given to the profession a law which places in the veterinarians' hands the determination of who shall practice within its borders, and has provided adequate punishment for those who violate its provisions. Further than this, it has recognized the soundness of the veterinary doctrine as to the danger from the milk of tuberculous cows, and has decreed that all animals which furnish milk for human consumption shall be subjected to the tuberculin test, those reacting to be removed from the herd, or the dairy excluded from the privilege of marketing its products within the District.

All this means not only work for the veterinarian, but recognition of his guidance in such matters.

To the extreme south, the State of Alabama has placed upon its statute books what is claimed as the best live-stock sanitary law in the country, and the office of State Veterinarian has been created.

Out upon the Pacific Coast, the California Legislature has given the profession a very much better law than existed in that state previously, placing in the hands of the veterinarians the right to say who is qualified to practice veterinary medicine by creating an Examining Board to pass upon the qualifications of applicants for license.

In the Northwest, Montana gave the profession most that it asked for, although their practice act has been delayed for the time being. It made the State Veterinarian a member of the State Board of Health and gave him a substantial increase of salary, while it passed a live-stock sanitary law which is said to cure all the defects in the old one.

In Minnesota, the profession has secured in amendments to its practice act all that was asked for, and the claim is made by veterinarians of that state that their law is now equal to the best in this country. Aside from this material gain, they have been instrumental in obtaining a stallion registration law, which requires all breeding animals submitted for registration to be examined by a qualified veterinarian. The Board. having this important work under its control must have a member of this profession upon it.

In the Middle West, the Governor of Illinois has shown his appreciation of the worth of this profession by dismissing from the important office of State Veterinarian of the leading live-stock state of the Union a man who was lacking in qualification and supplanting him by one who is an honor to his fellow-veterinarians and one whom they can endorse and support. For this act, in the light of the persistent refusals of his predecessors to respect the repeated demands for his removal, Governor Deneen has fairly earned the lasting gratitude of the profession everywhere.

Kansas has during the year placed its mark of approval up-

on her veterinarians by throwing around them her protecting arms, and has given them a practice law which is fairly good to start with.

In Pennsylvania the veterinarians have asked a great deal of their lawmakers, and they have been most liberally dealt with.

Aside from complying with their demands for greater safeguards around the excellent practice act already in force, at this writing there is every prospect of an additional hundred thousand dollars for the Veterinary Department of the University and an appropriation sufficiently large to compensate an assistant to the present overworked State Veterinarian.

In Colorado, not only has the profession secured additional evidence of the fostering care of the State Legislature, but the Agricultural College has been subsidized to found a Veterinary Department upon a high plane of educational proficiency.

Across the Canadian border, the veterinary profession has not been so generously dealt with in all the years of its existence as during the period under consideration. The Government has taken over the chief veterinary school in the Dominion, with the promise of placing it in the front rank of American veterinary colleges, and she has undertaken to install a system of meat inspection which has already given desirable appointments to nearly fifty members of this profession. The conduct of the affairs of the Health of Animals Branch of the Department of Agriculture has been so creditable that it has made it possible for the veterinary profession to obtain a great many advancements in a very short time.

Even in Cuba, where little could be looked for in the unsettled condition of the country, the establishment of a veterinary school is recorded in this number of the REVIEW. It is true, the school is a private enterprise, but a demand for veterinarians must have inspired its promoters with the belief that there exists a place for the institution.

It is quite possible that many more instances of substantial

gains by the profession could be recorded here if more diligent search of the files of this magazine were made; enough have been given for the purposes of this article, which are to show that in all sections of the country the people are ready to give us whatever our merits earn, and to do it as rapidly as we are capable of assuming the responsibilities.

Are we doing all we can to justify this confidence and support?

GREAT WESTERN VETERINARY COLLEGE ASSURED.

As REVIEW forms are closing for this number the good news arrives that the Illinois Legislature has granted an annual appropriation of $30,000 to maintain the veterinary college to establish which a fund of $250,000 had been raised in Packingtown and given outright to the University of Illinois. The only stipulation was that the school must be located in or close to the Union Stock Yards in Chicago and that the faculty must be as good as can be obtained. The site selected is Halsted Street, immediately south of the International Amphitheatre, and close to the magnificent equine hospital erected by the Stock Yards Company. It is the present intention of the donors to raise an additional hundred thousand dollars for the building and equipment fund, thus assuring a total sufficient to guarantee the highest conception of the promoters. It would appear from these facts that every obstacle has been removed, and, as the legislative appropriation becomes available in 1908, there remains but just enough time to perfect the necessary details.

LONDON MOTOR 'BUSES DOOMED.—An editorial in the May *Journal* indicates that the much-heralded automobile omnibuses of London are a failure. They cannot be kept in workable condition, and some owners state that a loss is incurred every day they operate. Many have abandoned them, and other companies are going into bankruptcy. Machines costing over $4,000, when put up at auction bring practically nothing, $10 being the highest bid in a recent attempt to sell some of them.

ORIGINAL ARTICLES.

THE DIAGNOSIS OF GLANDERS IN THE HUMAN SUBJECT FROM THE VIEWPOINT OF A VETERINARIAN.

By A. Silkman, D. V. S., New York City.

Presented to February Meeting of Veterinary Medical Association of New York City.

The writer of these observations has been for a term of years, and is at present employed in the capacity of Veterinarian by the Department of Health of the City of New York, and is attached to its Division of Contagious Diseases in the Borough of Manhattan, the scope of his duties embracing the diagnosis of suspected cases of glanders reported by veterinarians in private practice, the confirmation by diagnosis of cases positively reported, and the supervision of measures taken to prevent its spread, viz.: disinfection and destruction.

He has, therefore, had ample opportunity to become familiarized with glanders in the equine, and, in some instances, in the human subject, and in presenting this, a brief summary of certain of his experiences, for consideration before your honorable society, he wishes that you will feel that he is actuated by a sincere desire to promote discussion of this heretofore but little understood subject, and trusts that it will be productive of thought and research, and hopes that he may, in the near future, listen to papers by other and more eminent practitioners, all leading to the elimination of the *Bacillus mallei.*

Glanders in the human subject is not by any means the rare disease it is generally supposed to be. The writer is fully persuaded that many deaths have occurred through glanders which have been incorrectly attributed to other causes, through similarity of symptoms which have led to erroneous diagnoses.

Glanders may be divided into three forms, acute, sub-acute and chronic. In this paper, the writer will treat of but two,

acute and sub-acute, leaving the chronic form for future discussion in another paper.

In the acute form, glanders runs a very rapid course, terminating fatally generally in from twelve to eighteen days after infection. In the sub-acute form the period of incubation appears longer, and the patient may remain in a condition resembling typhoid for from four to five weeks. In this form the patient may live for six or eight weeks after infection; due, perhaps, to varying degrees of virulency of the *Bacillus mallei* or, perhaps, to the greater or lesser resisting power of the system affected.

It is extremely difficult for the medical profession to diagnose glanders in its first stage. It greatly resembles typhoid fever, and where any suspicion exists, the agglutination test for glanders should be here made, as well as the Widal test, especially in all cases of suspected typhoid where complications are present, and where the Widal test has failed of reaction.

As before stated, glanders in its first stage resembles typhoid fever. After a few days, almost invariably lung complications occur, which are frequently mistaken for acute lobar pneumonia. A few days later you may get articular pains on motion which resemble rheumatism. Suppurative periarthritis is here not an uncommon complication. About this time may be found one or more intermuscular abscesses forming in some part of the body. These abscesses, when opened, will be found to have no true wall or enveloping growth.

Three or four days before death ensues, pustules appear on the face, neck and shoulders, and frequently all over the body and extremities of the patient, who generally dies before these pustules rupture. These pustules are characterized by rough, uneven ulcerations around the edge of each, and rupture will disclose the contents to be a small amount of yellowish matter. Removing the tissue covering will discover the true farcy ulceration, a peculiar characteristic of which is that immediately prior or subsequent to death, an anæmic, whitish areolar

surrounds this ulceration, which I believe to be a true diagnostic lesion of glanders.

Frequently, the lymphatic glands are found to be involved, and often ulcerations occur in the Schneiderian membrane, accompanied by a profuse discharge a day or two prior to death. Orchitis may or may not be present. With the farcy form the glands are rarely affected.

The temperature plays an important part in the diagnosis of glanders in the human subject. As a rule, the temperature is persistently fluctuating, uncertain and uncontrollable.

Instances exist where a patient has applied to a physician for treatment a week or ten days after infection. The patient presents a dejected and worn appearance; has an anæmic look and peculiar color. He states he does not feel well, complains of lassitude, possesses no strength, has no definite idea of what he is suffering from. He gives no hint as to his employment in the vicinity of horses, and the practitioner on examination discovers symptoms of pneumonia, and commences treatment accordingly. Or, perhaps, the physician finds an abscess forming and inaugurates treatment for sepsis, recommending the removal of the abscess.

An operation discovers a peculiar abscess. This is scraped, washed with a bichloride solution, and dressed with bichloride gauze. Contrary to all expectations, the patient fails rapidly after the operation, and soon dies, the cause of death being variously attributed to typhoid, typhoid pneumonia, lobar pneumonia, erysipelas, multiple abscess or septicæmia, etc.

It can be readily understood that the patient, although affected with glanders, has been treated according to the symptoms evidenced when he first presented himself for observation to the practitioner, who makes the return of death in accordance with his original diagnosis.

The writer has secured permission from Dr. Van Ingen, formerly House Physician of the Presbyterian Hospital, to cause to be read his exceptionally well written paper on a case, one of the first the writer was called on for observation.

This will serve to illustrate a case of glanders in a human subject from the initial to final stages, exclusive of the autopsy.

REPORT OF A CASE OF GLANDERS.

By Philip Van Ingen, M. D.

The following case, occurring in the service of Dr. G. A. Tuttle, with whose permission I report it, presents features which are not very definitely described in the rather vague accounts of glanders as given in the various text-books of medicine. The case was watched and studied very carefully, but the diagnosis was not made until a few days before death.

The patient, James C., aged twenty-eight, who gave his occupation as a cook, was admitted to the medical wards of the Presbyterian Hospital June 25th, 1903. His family history was negative. He lived in Westchester Co., New York, a district where malaria is rife, but which is otherwise healthful. His drinking water was obtained from a deep well. There had been no cases of "fever" in the vicinity. His habits were fairly good.

Ten years ago he had his first attack of malaria, since which time there had been a return of "chills and fever" nearly every year, of only slight severity. His last attack he thought was about four weeks ago. It lasted only a few days, after beginning treatment with quinine.

Two weeks before admission to the hospital he began to feel miserable. At first there were merely malaise and apathy, which, however, gradually increased in intensity. One week before admission he felt so miserable that he called in a physician, who found his temperature 104.5 F. During the week before he came under our observation his temperature is said to have continued between 102 and 103 F. He complained of a general feeling of soreness, and coughed a good deal, the sputa being muco-purulent, never rusty or blood-streaked. There had been no chills, no epistaxes or vomiting. The bowels were regular. As there were abundant subcrepitant and sibilant râles over both lungs, with high fever and great prostration, he was thought to have broncho-pneumonia. During the last

three or four nights before admission he was delirious.

When admitted to the wards with a temperature of 105 F., pulse 112, respiration 30, he appeared to be a fairly well-nourished man, very much prostrated and apathetic. He looked very ill. The tongue was moist and coated with whitish fur, especially over the back part. Along its margin were four or five yellowish areas from one-fourth to one-half inch in diameter, covered with a yellowish membrane which was quite firmly adherent. At the left angle of the mouth was a similar yellowish area. These patches were slightly elevated, and there seemed to be no loss of substance. There was a good deal of congestion of the pharynx and tonsils, but no exudate was visible. The superficial lymph-nodes were not enlarged. The apex impulse of the heart was in the fifth intercostal space, three and one-half inches to the left of the median line. The heart was acting irregularly, occasionally intermitting, and a soft systolic murmur could be heard at the apex, which was not transmitted. Of the two basal sounds the aortic was the louder. The pulse was rapid, irregular, full and soft, not dicrotic, and the vessel wall was moderately and diffusely thickened. Over both lungs a moderate number of subcrepitant and sibilant râles were heard. There was no appreciable dullness or change in breath-sounds. The rounded edge of the spleen could just be felt at the costal arch. Over the right deltoid region was a slightly reddened area apparently due to irritation from a hypodermic injection, which soon disappeared. The right knee was considerably swollen, and was held in a position of extension. It was hot, but not reddened, exquisitely tender, and measured at midpatella one-half inch more than the left. There was also considerable tenderness on deep pressure over the lower half of the right femur, but no thickening of the bone could be made out. There was no appreciable tenderness over any other bone, nor was any other joint involved. Scattered over the entire trunk was a diffuse eruption composed of small macules about the size of a pin-head, lying deep in the substance of the skin. They disappeared almost completely on pressure, and there was

no tendency to form large patches. Subsultus was marked. The physical examination was otherwise negative. The extremities were free from eruption. There was no stiffness or tenderness of the muscles of the neck, nor was there any coryza.

The urine was of a specific gravity of 1020, contained a heavy trace of albumin, a considerable number of hyaline and granular casts, and gave a faint indican reaction. No glucose was present. Examination of the blood on the morning after admission showed 7,900 leucocytes. No malarial plasmodia were found, and the Widal reaction was negative. The leucocytes from this time on never rose above 10,500.

During the three days after admission the temperature ran between 103.5 and 105 F., once falling to 102.7 F. The pulse was less rapid, never being above 100, and varying between 76 and 100. The patient presented more and more of the typhoidal condition. There was low, muttering delirium at night, and by day he was slightly irrational and hard to arouse. The tongue became dry, cracked and tremulous; the abdomen a little distended. There was a good deal of paroxysmal cough with slight muco-purulent expectorations, which did not contain tubercle bacilli. The swelling of the right knee became slowly more marked. The joint was now held in a position of semi-flexion; tenderness and heat also increased. The tenderness over the lower half of the right femur also continued.

On June 29th (fifth day in hospital) the knee had considerably increased in size, and for the first time there was noticed a good deal of induration of the soft parts, with redness, about the outer and posterior aspect of the joint. An exploring needle was introduced into the joint with aseptic precautions, and about two and one-half ounces of thick, sticky, yellowish pus, containing small fibrinous masses, was obtained. The yellowish areas on the tongue and at the angle of the mouth had enlarged. The deep macular eruption noticed on admission had steadily faded, and appeared now only as a faint, dull discoloration of the skin, over which was a very scanty, fine desquamation. The temperature this afternoon reached 106 F.

Operation was advised, but owing to delay in the friends reaching the hospital it was not performed until the following evening. On the morning of the day of operation, June 30, the left wrist was swollen, red, hot and tender; active and passive motion were intensely painful. There were no signs of lymphangitis.

The patient was now transferred to the service of Dr. Hawkes, with whose permission the subsequent history is given. Incision of the knee-joint and wrist was performed by Dr. Hawkes on the evening of June 30, and a considerable amount of sticky, yellowish, thin pus, without odor, and containing large fibrin masses, was evacuated from both joints. The patient did badly after the operation. The temperature remained high for the most part, between 104 and 106 F., once reaching 106.4, and registering 107.2 just before death.

Alcohol sponging had no effect upon the temperature or pulse, which later ranged between 110 and 176.

Two days after operation the patient became semi-comatose. At times he was very delirious, but for the most part he lay in a state of semi-coma from which with difficulty he could be aroused. The discharge from the wounds was at first thin, yellow, odorless and rather scanty, but in forty-eight hours it had become more profuse, thick and foul.

July 4 a deep, boggy swelling was discovered just above the right ankle. It was incised, and a small amount of thin yellowish pus was evacuated. It was not well walled off, but extended for some distance between the muscles of the anterior tibial group. A second abscess, which had appeared over the right malar region, was incised and a small amount of thin yellow pus evacuated. During the afternoon a number of reddened areas, varying in size from one-fourth to three-fourths of an inch in diameter, not well circumscribed, were noticed over the trunk, shoulders and thighs. They were not elevated, but gave a distinct sensation of deep induration. The original deep macular eruption had entirely disappeared. The patient was now in an intensely septic condition, and comatose. Breathing

was labored, rapid, and entirely through the mouth, which had become dry and covered with thick adherent mucus. Crusts had formed at the angles of the mouth and in the nostrils. No ulcers could be seen in the anterior nares.

July 6, another deep-seated, boggy swelling appeared on the dorsum of the right forearm just above the wrist. This was incised, and a small amount of thin, reddish-yellow pus was found lying diffusely between the deeper muscles. None of these abscesses could be traced to bone. The irregular, reddened, indurated areas had now increased in number. They were slightly elevated. The next morning they presented for the first time the following characteristic appearance: Scattered over the whole body, but most numerous on the face and shoulders, were papules and pustules, from one-eighth to one quarter of an inch in diameter, and with reddened and inflamed bases. Many of them were surrounded by whitish, firm areolæ from one-half to one inch in diameter. The pustules were of a yellowish color, and some of them were umbilicated.

With the appearance of this eruption the question of infection from glanders was inquired into, and it was found that the patient was not a cook, as he had stated on admission, but a fish-dealer. He owned a horse; which he cared for himself, and which was shot by the order of the Health Department one week before the patient was admitted, because it was suffering with glanders. The patient steadily became worse, and died the following day, a picture of the most intense sepsis.

Three cultures were made from the blood during life. Those of June 27 and June 30 were both sterile. The third, taken July 5, gave a characteristic growth on potato and in milk, and morphologically proved to be a pure growth of *Bacillus mallei.*

Three cultures were made from the pus from the joints. The first, from that obtained by asperation of the joint, is reported as showing a growth of a bacillus of unknown variety. Does not give characteristic appearance of glander bacillus on potato and does not coagulate milk. Probably a contamination. The second, from the pus obtained on incision of the joint, showed

a growth of pure white colonies and some yellow colonies, the former proving to be *Staphylococcus pyogenes albus*, the latter sarcinæ. The third was made from the discharge from the joints, on July 6, and showed a very abundant and mixed growth, but no *Bacillus mallei* could be isolated.

Immediately after death a culture was made from the pus of an unbroken pustule, which gave a characteristic brownish growth on potato, and rapidly coagulated milk, with formation of a yellowish growth on the surface. Morphologically the bacterium was characteristic *Bacillus mallei.* A pustule was also excised and sections were made which showed the presence of the *Bacillus mallei* in the substance of the pustule.

Unfortunately, an autopsy was not permitted.

* * *

Another case of interest also treated at the Presbyterian Hospital is the case of James M., an Italian, forty-three years old, who applied on November 12th for treatment, and who died on November 30th, 1906. A few facts only will be stated, as the doctors at the hospital have written up his case to the minutest detail, and which let us hope to see published for the benefit of the medical profession. If it is not published, the writer will endeavor to secure permission to read it for the benefit of the Society on some future occasion.

This man owned two horses. About six weeks before he was admitted to the hospital, one of these horses died, and the other became sick. Two or three weeks before he was admitted to the hospital the other horse died. He said that the doctor who had treated his horses said that they died of pneumonia. The writer examined the horses stabled where he had kept his, and found two of them suffering from glanders. They were destroyed, with another which was condemned on mallein test. When this man was admitted to the hospital he said that he had been sick for about six weeks.

The point to bring out in this case is that the Widal test was made at three different times, and each time it was negative. About twenty-four hours before death a specimen of

blood was taken for the agglutination test for glanders, which Dr. Collins informed me agglutinated 1-1000 complete. An autopsy was held by Dr. George A. Tuttle.

An intermuscular abscess was opened in the leg, from which was obtained some matter. Two guinea-pigs were injected. One died in about twenty-four hours, showing a slight Strauss reaction, death probably being due to septicæmia. The second pig died in about forty-eight hours, giving a good Strauss reaction.

The writer desires at this time to express his sincere appreciation of the courteous treatment that has been extended to him at the Presbyterian, New York, and Gouverneur hospitals on various occasions. Also, to Dr. Collins, of the Research Laboratory, to whom we are all indebted for her effort to perfect the agglutination test for glanders.

The writer begs to refer to the case of Mr. W———, which came under his personal observation.

This man was the owner of two horses, employed to haul an ice-wagon. Glanders developed in a stable where these horses were kept. The writer examined all the horses stabled there, quarantined a number, and held them for mallein test.

The owner strenuously objected to his horses being held, claiming that they were unaffected, and that they ate as well as ever. Arguments were advanced in favor of the writer's reasons for testing his animals, without convincing the owner. In the writer's absence, he signified his intention to a stableman of giving one of his horses a bolus, which he subsequently carried into effect. While removing his hand from the horse's mouth, he discovered that he had been cut on the back of his thumb. The stableman advised him to bathe the wound with a disinfectant, but Mr. W——— declined to do so, stating his unbelief in precautionary measures. Three days later he complained of feeling unwell. The fourth day found him no better. On the fifth day one could see he was very ill; he had a drawn, dejected appearance, and was evidently very weak.

Meanwhile, the quarantined horses had been tested, and a

number, found to have been glandered, destroyed, among which were two of Mr. W———'s. On the sixth day the writer was informed that Mr. W——— was at home, ill, and that his physician had diagnosed his case as typhoid fever. On the eighth day he was removed to a hospital, where he was examined and the case diagnosed as typhoid pneumonia.

The writer called at the hospital soon afterward, inquired after the patient, and requested to be informed whether the authorities were in possession of a good history of the case.

Reply was made by the doctor in charge of the patient that he was fully aware of what Mr. W——— was suffering from, that the history was immaterial, and that, were he affected with glanders, he would have so diagnosed it.

The writer differed, and reported the case to the Department of Health as a suspected case of glanders.

Three days later, I again saw Mr. W———, by which time it was a pronounced case of glanders, although the doctor still claimed it was not. The next day the patient died, and the writer insisted that an autopsy be held. This was performed by Dr. G. P. Biggs, and the existence of *Bacillus mallei* demonstrated.

H. W. W. Autopsy. Performed by Dr. G. P. Biggs.

Admitted August 22d, 1905. Died, August 26th, 1905. Autopsy, August 27th, 1905. Inspection.—Body poorly nourished. Rigor mortis.

Skin.—Presents a large number of suppurating nodules, varying from 1 to 2 cm. in diameter. They are moderately elevated above the surface, and many of them are surrounded by a whitish anæmic zone 1 to 3 cm. in width, which is said to have been hyperæmic during life. Even the smallest nodules contain a thick yellowish or yellowish-red pus. Those from which the pus has escaped have a depressed centre. The largest skin nodule is in the left temporal region, and is ulcerated in its central part. The nodules are mostly in the anterior and lateral aspects of extremities, trunk, neck and head, being most abundant on trunk and head. In the left nostril a distinct suppurating nodule 3 mm. in diameter is found, while in the right nos-

tril there are found extensive ulcerations. In the subcutaneous tissue, and not involving the overlying skin, there are also several areas of suppuration 2 to 4 cm. in diameter. The largest is found over anterior aspect of left leg and outer aspect of right leg. Soft tissue about the interior two-thirds of left clavicle is much indurated, and skin covering this region has the whitish appearance noted about many of the skin nodules. Incisions into the indurated tissue show many small collections of thick yellowish pus 2 to 8 mm. in diameter.

No wound of skin is found to explain source of infection.

Peritoneum.—Normal.

Diaphragm.—Attached at fifth space on left side and fourth space on right side.

Pleura.—Small amount of fibrinous exudate over the posterior surface of each lower lobe.

Pericardium.—Normal.

Heart.—Size normal. Cavities contain a moderate amount of dark fluid blood and post-mortem clots of fair size. Valves normal. Small petechia in one aortic cusp. Orifices are of normal size. Muscle normal in color but presents foci of suppuration.

Coronary arteries normal.

Aorta normal.

Lungs.— Bronchi contain a moderate amount of frothy fluid and are slightly hyperæmic. Bronchial lymph nodes not enlarged. Vessels normal. Thin layer of fibrinous exudate covers the posterior surface of both lower lobes. Both lower lobes are very hyperæmic and in their posterior parts consolidated to a depth of 1 to 2 cm. This appearance does not differ greatly from that of hypostatic pneumonia. There is an abscess in left lower lobe 1 to 2 cm. in diameter, reaching to the surface. Consolidated parts are very hyperæmic, and not as firm as in lobar pneumonia. A few small foci of suppuration are found in other parts of lower lobes averaging about 2 mm. in diameter. In upper lobes and middle lobe there are scattered foci of suppuration varying from 2 to 5 mm. in diameter, the number being rather greater in upper than in lower lobes. All suppurating foci are surrounded by zones of consolidation 1 to 3 mm. in thickness. Hæmorrhages are abundant in pleura over lower lobes.

Spleen.—Organ is much enlarged. Soft and dark red in color, weight 9 ounces. No foci of suppuration seen.

Kidneys.—Weight 13 ounces. Slightly enlarged. Capsules not adherent. Surface smooth. Cortices moderately swollen. Markings indistinct. Valves normal. No nodules or foci of suppuration.

Pancreas.—Normal.

Gall Bladder.—Normal.

Liver.—Weight 5½ pounds. Gross examination shows no evidence of lesions.

Stomach.—No lesions.

Intestines.—Negative throughout, except for a few areas of hyperæmia in ileum.

Bladder.—Normal.

Prostate.—Normal.

Thoracic Duct.—Normal.

Spine.—In dorsal region partly behind and to the left side of the aorta and spine is an area of purulent infiltration and induration of tissue extending along the spine a distance of 8 cm. Spine and aorta proper do not appear to be involved.

Lymph Nodes of body are not found enlarged, and none of them examined contained any pus.

Trachea.—Normal.

Larynx.—Normal.

Pharynx.—Tonsils and tongue normal.

Thyroid Gland.—Not distinct. Glanders bacilli obtained.

* * *

The writer also begs to submit the following history of a

CASE TREATED AT THE GOUVENEUR HOSPITAL.

On June 13, 1904, Stephen Sanbelia, a Russian, applied at the Gouveneur Hospital for treatment. On examining him they found that he was suffering with cellulitis of the neck. Just above clavicle on the left side there was some swelling and an area of inflammation. On the arms and legs there were several small abscesses.

On June 14th they examined the swelling above the clavicle, and found that an abscess was forming, and they thought it advisable to perform an operation for the removal of same. The patient was prepared and removed to the operating room,

where gas and ether were administered, and taken well. An incision was made above the clavicle and pus found. The small abscesses on the arms and legs were opened, and found to contain a pale, yellowish fluid.

After the operation the patient continued to grow worse, and many small abscesses developed upon the arms, legs and body. There was a little discharge from the nose, which became more and more profuse. This fluid was translucid and adherent, the same characteristic discharge that we have with glanders in the horse. The wound after the operation was dressed with wet dressings of bichloride, but showed no tendency to heal. The symptoms of cellulitis subsided, but those of general sepsis appeared. The treatment was changed, and the patient treated for general sepsis.

The patient was kept on light diet at regular intervals and his appetite seemed to be good, but he failed fast, and on June 22d the Health Department was asked to send some diagnosticians down to see the patient and to determine, if possible, what the man was suffering with. It was my good fortune to visit the patient in company with Dr. S. K. Johnson, who pronounced it a true case of glanders, which was afterwards borne out by the autopsy, and also by the Bacteriologist. The patient died at 5.50 P. M. on June 22d. It was impossible to get a good history of the case. After the patient died, it was found that he had worked in a stable where there had been glandered horses.

The temperature of this man on June 13th was 100 at 3 P.M., 101.2 at 9 P. M. On the 14th, 100.5 at 9 A. M., 102.5 at 3 P. M., 101.4 at 9 P. M. On the 15th, 101.1 at 9 A. M., 102.2 at 3 P. M., 102.6 at 9 P. M. On the 16th, 100.8 at 5 A. M., 100.2 at 9 A. M., 100.2 at 1 P. M., 98.8 at 5 P. M., 103.8 at 9 P. M. On the 17th, 102 at 5 A. M., 100.6 at 9 A. M., 100.8 at 1 P.M., 102.4 at 9 P. M. On the 18th, 100.6 at 9 A. M., 101.5 at 3 P. M., 101.2 at 9 P. M. On the 19th, 101 at 9 A. M., 103 at 3 P. M., 102.2 at 9 P. M. On the 20th, 100.4 at 9 A. M., 101.4 at 3 P. M., 100.4 at 9. P. M. On the 21st, 100 at 9 A. M., 102 at 3 P. M., 101.5 at 9 P. M. On the

22d, 104 at 5 A. M., 106 at 9 A. M., 107 at 1 P. M. (the last temperature taken.)

Autopsy Held by Dr. Otto Schultz.

General Appearance.—Well-developed male cadaver, height five feet, six inches. Weight, 145 lbs. Rigor mortis.

Skin.—Forehead, one pustule. Left cheek, three pustules. Right cheek, two pustules, 1 mm. to ½ cm. in diameter. Neck, left side swollen and shows two areas three cm. in diameter, each composed of mutiple pustules, and a similar area over left clavicle of similar diameter. Right shoulder, arm and forearm, a number of pustules, some of which are broken through the top, ranging from a few mm. to 1½ cm. On left forearm there is an intra-muscular abscess 5 cm. in diameter. There are a few nodules on belly about 3 mm. in diameter, the same on thighs and legs. Right leg, a muscular abscess extending to and involving cutis 4 cm. in diameter. Back, on the neck and over the shoulder blades and dorsal region numerous pustules, some broken through top, ranging in size from a few mm. to 1½ cm., larger ones prominent about 3 mm. above surface of cutis. Thorax, abscesses as mentioned in neck. The foci extend through the sterno-mastoid muscles.

Right side of Diaphragm.—Attached at the third intercostal space. Left side attached to fourth rib.

Pericardial sac.—Contained one dram clear fluid.

Intestines.—Normal.

Stomach.—Shows an area of ecchymosis in the most dependent part, near cardia.

Head.—Scalp containing a number of pustules, extending down and involving the periosteum, and some 3 cm. in diameter. Inner aspect of skull shows intense congestion of veins, and, over dura, intense congestion of veins.

Flat hæmorrhagic membrane over vertex inner aspect of dura on right side.

Vessels of pia intensely congested.

Velum also intensely congested.

Fourth ventricle normal.

Brain.—Negative outside of intense congestion of all the points

Nasal mucosa—Is thickened to 3 mm. in the sub fossa, and infiltrated with purulent foci. The rest of the mucosa simply shows a swelling œdema, and occasional purulent foci.

Chest.—Left lung: lower margin of upper lobe several foci few mm. in diameter, surrounded by consolidation dark in color. Bronchi contain a little frothy mucus. Posterior part of apex of the lung is consolidated, dark in color, not granular; also a cavity measuring about 3½ cm. filled with pus. Lower lobe congested posteriorly. Right lung: the apex of right lung a number of slightly yellow-grayish zones, varying in size from a few mm. to 1 cm. in diameter, embracing surface of pleura, extending downward into lung 1½ cm., surrounded by zone of intense congestion. There are a few nodules in upper part of lower lobe.

Heart.—Left auricle contains ordinary post-mortem fatty clots. Right partly clotted, partly fluid dark blood. Heart normal in size and weight. Valves normal. Muscle brown and opaque.

Abdomen.—Spleen is enlarged, weight judged to be 1 pound. The posterior upper part of spleen embracing a zone 6 cm. in diameter is denser than the rest of tissue, hæmorrhagic flat on section.

Liver.—Increased in size and weight, and judged to weigh about 4 pounds, intensely congested and opaque on section.

Kidneys.—Left slightly enlarged, judged to weigh 6½ ounces, cortex swollen, intensely congested and the lobes grayish white and opaque. Capsule strips readily, surface smooth. Right slightly larger than the left; same condition found.

Larynx.—In pyriform fossa on the right side a small yellowish bud 1 mm. in diameter; also one in left pyriform fossa and also one in epiglottis yellowish in color and surrounded by a zone of congestion.

* * *

The following case of Mr. S—— also came under the writer's observation.

This man was a stableman, thirty-nine years of age, employed in a stable where glanders developed.

He complained of feeling ill, and his physician diagnosed the case as pleurisy. On his removal to the hospital a few days later, his case was diagnosed as pneumonia.

About three days prior to his decease, a number of pustules appeared on his face, which caused the question of erysipelas to arise.

The writer, a few moments before the patient's death, managed to procure a small amount of blood with which to try the agglutination test for glanders, which up to this time had not been tried in the human subject. Dr. Collins, of the Research Laboratory, subsequently informed the writer that it agglutinated 1–2000 complete. An autopsy was held, and lesions of glanders found. The duration of illness in this case was eighteen days.

In all cases of glanders in the human subject which have come under the writer's observation, connection has in every instance been established between the patient and some horse or horses proven to have been glandered, and either owned or cared for by the subject, with the single exception of one chronic case.

Glanders will not localize at the point of infection. Wounds through which the subject was known to have been infected have healed, before any marked symptoms of glanders have developed, and have subsequently shown no sign of inflammation or infection.

From observations of sub-acute cases in the human subject, and from experiments with mallein in horses, the writer is led to believe that with small and repeated injections of specially prepared mallein at the initial stages of sub-acute cases in the human subject, the disease would yield, and change into a chronic form, with an ultimate possibility of recovery.

During the past year a number of cases of glanders in the human have been reported, and many of these have been watched by some of our most eminent physicians.

The writer trusts that these few crude remarks may prove an incentive for some of these to give this honorable society the benefit of their observations at some future period.

"I CANNOT think of doing without my old friend, the REVIEW."—(*H. M. Hunter, V. S., Visalia, Cal.*)

THE MASSACHUSETTS BOARD OF REGISTRATION IN VETERINARY MEDICINE will hold its next examination on July 10 and 11, at the State House, Boston.

CRYPTORCHID CASTRATION.

By L. U. Shipley, V. S., Sheldon, Iowa,

Presented to Meeting of Iowa Veterinary Association, Jan. 28, 1907.

A brief *résumé* of the conditions as they are found and dealt with, are as follows: (1) The condition of the animal to be operated upon and surroundings; (2) Best age for operation; (3) Conditioning the animal for the operation; (4) Previous history of the animal; (5) A proper place to operate; (6) Mode of casting and securing; (7) Antiseptic precaution; (8) Operation; (9) After-treatment.

(1) It is hardly necessary to say the animal should be in a healthy condition, but furthermore the operator should also inquire, and investigate the health of other equines upon the premises. Should there be infectious diseases among the horses, such as strangles, or influenza, or some of the sequelæ thereto, the operation should be postponed until you are satisfied there is no danger of your case being contaminated or exposed to infection therefrom, or, in other words, until all cases are fully recovered and the premises have been thoroughly disinfected. By so doing we may avoid a fatality likely to result from even the most skilful operation. The folly of operating upon an unthrifty subject was recently my experience. I was requested to operate upon an animal which had been unsuccessfully operated upon some four or five months previous. I found the animal in such an unthrifty condition that it was under protest that I consented to operate, and after fully informing the owner of the risk of a fatal termination, it occurred seven days after the operation. At the time of operation, upon puncturing the peritoneum, a quantity of straw-colored serum escaped through the operative wound, verifying my suspicion of chronic peritonitis, probably introduced by the previous operation. We often find our subjects in the most unsanitary surroundings, which should be duly considered, for if the animal is to be replaced therein, a great risk of after-infection con-

fronts your subject. Therefore it is of the highest importance that you so impress your client, and, if possible, give the animal the most sanitary surroundings. For this reason I consider the safest after-conditions are obtained by turning out to pasture, where risk of contamination from noxious gases and dust of the barn-yard are avoided. I even prefer this at the risk of getting wet in a warm summer shower, thought to be detrimental to colts after castration. However, this latter danger I believe to be erroneous; the prevalence of this idea is possibly due to many castrators using it as an excuse or shield for the results of filthy operations.

(2) The operator does not have much to do with determining the age of the animal upon which he must operate, but usually must take them at any age, as he finds them, but where able to previously advise, it is best to operate upon one- or two-year-olds, for some of the following reasons: They are more easily handled; they are usually out at pasture, and can be returned therein, because their amorous propensities have not caused them to be confined. Under these most favorable circumstances the best results are obtained, while the older animal, having necessarily been confined, cannot immediately be removed from his quarters to the pasture, hence the greater risk of after-infection.

(3) In considering this unquestioned advantage to the subject as well as the operator I realize the difficulties of a busy practitioner always being able to have a subject properly prepared for operation, as they are often many miles distant, which might necessitate a second visit at the expense of valuable time, yet I believe all operators will agree that previous preparation by withholding food and water, and possibly the administration of a cathartic, is of unquestioned advantage. This applies, of course, to older animals, that are confined, and not to one- or two-year-olds running in pastures. Again, I would especially caution an inexperienced veterinarian to avoid immediately operating upon a large, strong animal previously confined to a stall, as they often are, without having them given some gentle

exercise prior to operating. This may avoid an attack of the bane of the veterinary profession—azoturia, which would be embarrassing indeed. This rule, of course, applies with like force to all equine subjects of surgical operations, where restraint is necessary.

(4) Obtaining the history of your subject, I need hardly remind the experienced operator, is of much importance. We should ascertain if the case has been previously castrated, and when, and, if possible, on which side a testicle has been removed. If this can be truthfully obtained the operator may then proceed in a definite manner. However, this information is not always reliable, and the operator should not take this for granted and proceed to operate without carefully examining the scrotum for the cicatrix of the previous operation. If done by the old-fashioned clamp the resulting scar is always in evidence and the operator need have no doubts, but if done with the emasculator or similar methods the cicatrix is hardly discernable and its location becomes a question of doubt, and if not definitely ascertained the operator may be chagrined to find he has operated upon the wrong side. This fact is usually ascertained by finding the stump of the spermatic cord in the inguinal canal. However, this is not always definitely determined, especially if the animal has been castrated young, and the spermatic cord atrophied to the extent of not being perceptible to palpation, then the operator only discovers his error after penetrating the peritoneal cavity and failing to find the object sought. It is still of more importance to ascertain if more than one operation has been attempted. If a previous attempt to remove the hidden testicle has been made, the operator is then confronted with two scars. Even then he may be able to determine upon which side the hidden testicle lies from the character of these scars. For instance, the normal testicle removed may have been by clamp, which would indicate, as before stated, upon which side to operate. But it often occurs that the scars of the previous operation are of such similarity, and the history of such operation obtainable is of such uncer-

tain character, and manipulation of the inguinal region not always giving definite results, owing to cicatricial tissue caused from previous operations. It necessarily follows that the operator is entirely ignorant as to the side upon which he will find the testicle. His only recourse then is to resort to rectal exploration, which may reveal the location of the hidden testicle. The objection to resorting to rectal examination is that it infects the operator's hands, rendering them unfit for immediate operation. When one has his case close at hand this procedure is well enough, but with the operator twenty miles from home it is out of the question. Therefore, my method is to proceed with the operation, and, if failing to find the object sought, immediately operate on the other side.

For myself, I have found no bad results from a double operation. In this connection it is well to remember the fact that the greater per cent. of cryptorchid testicles occurs upon the left side. I believe some writers say as high as seventy-five or eighty per cent. are on the left side, and my own experience verifies this statement. This being true, it would be the part of prudence, in these doubtful cases, to operate upon the left side.

Again, the finding of a supposed stump of the spermatic cord in the inguinal canal may lead the operator into an error, for it sometimes occurs that a loop of said cord or the vas deferens may pass down into the canal, but the testicle remain lodged in the ring.

To differentiate this condition from a stump of the cord requires careful manipulation. If it be a cord the cicatrix of the free end may be discernable. If a loop of cord, or vas deferens, the loop may be determined by manipulation and the operator proceed accordingly.

(5) In selecting a place to operate we seek to avoid as near as may be all possibility of infection. Therefore, always avoid barn-yards, stalls or sheds, even though roomy and apparently clean. The ideal place, always obtainable on every farm, is a clean, grassy plot of ground where no dust or refuse matter will be stirred by casting and confining the subject. Clients

often suggest old straw stack bottoms as a suitable place, or the bedding down of a place with straw, all of which should be avoided. All straw is more or less dusty, hence dangerous.

(6) The mode of casting and securing our subject for this operation has for its principal object the rendering accessible of the inguinal region. A proper exposure of this region is of the highest importance to the operator. For this purpose the old-fashioned side-lines are perhaps preferable, although many operators use various casting lines, all of which are useful. Familiarity with the use of these casting methods counts for more than the kind of apparatus used.

(7) Upon this necessary adjunct of all surgery no new features apply to the cryptorchid operation, only those incident to the surrounding circumstances. However, I wish to say: the country veterinarian doing a general practice, and especially at the season when most of the cryptorchid castration is done, is called upon to do a great deal of obstetrical work and many other surgical operations that render his hands anything but aseptic. Therefore he must necessarily use extraordinary precaution disinfecting himself before attempting the operation under discussion.

I have made it a rule never to operate upon a cryptorchid the same day after attending an obstetrical case, or other work likely to render the hands septic, believing that thorough washing with disinfectants alone is not sufficient, but, rather, that time with exposure to the oxygen of the atmosphere is also necessary to render septic hands aseptic.

Another matter in this connection: The busy veterinarian, with no assistant, usually has to apply the casting harness and take the principal part in restraining the subject. Said harness usually becomes filthy by contact with the ground, and if handled prior to the operation is a source of danger. When one has no competent assistant this danger can be partly avoided by wearing gloves during the application of the harness.

For obvious reasons hospital methods for preliminary disinfection are impractical. Therefore, the operator must be as

thorough as possible in his attempt to render himself, instruments, and the point of operation, as well as adjacent surroundings, aseptic immediately prior to operation.

(8) I shall not enter into a discussion of the anatomy or *modus operandi* of the operation. I only wish to make a few remarks in relation thereto which past experience has suggested.

Do not try how quick you can perform the operation, but how well.

One is liable to be flattered by praise of rapidity with which he operates, thereby failing to use his better judgment and caution, for errors can be made in haste which might do irreparable damage to the subject and to the operator's reputation.

To illustrate this I will give a case: Was operating upon a large two-year-old, which I thought I had confined properly, and was proceeding with the operation to the point of puncturing the peritoneum, when a sudden struggle of the subject caused me to insert my whole hand into the abdominal cavity, thus causing a very dangerous hernia, which fortunately caused no serious difficulty in this case.

Therefore it will be well for the operator to be on his guard at this particular point of the operation, especially in young animals in which the abdominal walls are very thin. And if the subject struggles, withdraw the hand a little ways until the struggles have ceased. He can then usually complete the operation before the animal makes another such effort.

(9) The best after-treatment and conditions for the colt of one or two years of age is giving liberty in pasture with stabling nights or during inclement weather in a clean stall when obtainable. But so often these favorable conditions are out of the question, or the stall given colts on the farm are of such unsanitary nature, that it is hazardous to place them therein for even the shortest time. As a rule, the pasture affords the most favorable surroundings for these cases.

But the older animal, whose amorous propensities make it unsafe to give him liberty immediately after operation, a clean stall must be provided, where it is well to tie the head high to

prevent lying down for a few hours following the operation. This latter especially applies where the operation has been a difficult one, and the opening into the abdomen has been necessarily large. By this means we seek to avoid a hernia, of which there is not so much danger after a few hours, owing to the swelling of the operative wound.

These older animals can be usually given light exercise in harness, which is the best after-care to running in pasture.

The operative wound may need some after-care in some cases, but owing to distance and time consumed cannot often be given by the veterinarian, and I seriously question the advisability of leaving instructions for the owner or attendant to open, wash or lubricate the wound, for it has been my experience, oft-times repeated, that where such instructions have been given I have had a troublesome after-infection to deal with, caused, as I believe, by dirty fingers being inserted into the wound, or by the use of an old filthy syringe. Therefore, the operator should be scrupulously cautious and careful to do an aseptic operation and then trust to nature to take care of the wound rather than allow interference that may cause your patient and yourself unnecessary trouble.

To summarize these few rambling remarks, to be a successful cryptorchid operator:

First, operate only upon a healthy animal, amid the most sanitary surroundings obtainable.

Second, when possible operate when one or two years of age.

Third, when possible have your case previously prepared for operation.

Fourth, obtain all the history of your case before operating.

Fifth, select the cleanest place obtainable for operating.

Sixth, always secure your patient properly before beginning the operation.

Seventh, spare no pains in rendering your patient and yourself as aseptic as possible.

Eighth, operate carefully.

Ninth, give the best after-care possible.

PUNCTURED WOUNDS OF THE FOOT.

By Thomas Farmer, V. S., Grand Blanc, Michigan.

Read before the Michigan State Veterinary Medical Association, February, 1907.

It seems as though there could not be anything new advanced on this oft-debated subject. I will say that by reading some papers printed in the journals giving very elaborate details of the procedure of operation, it would seem a very serious and complicated task. Now, I never have had very much trouble with nail punctures. Perhaps one reason is, I get them sooner than I would were I not living in close proximity to a horse-shoeing shop, and, having been a practical horse-shoer myself, they naturally come to the shop whenever a horse is taken lame, so that I generally get them before the owner, if a farmer, applies his excelsior poultice. You all know what it is; comes all ready prepared and deposited in the cow-barn or barn-yard; everything favorable to germ life is being provided for, not only in this particular poultice but others as well. I have in years gone by used poultices, but have relegated them among the has-beens. Did you ever see a cut on the limb heal while poulticing? I never have; then, why poultice the foot? The use of caustic irritants in punctured wounds is another source of delay in healing wounds of this nature; it is positively detrimental, as they cauterize the external opening of the wound and imprison the pus, which is sure to form if the opening is closed, and in this way compelling the pus to seek an opening between the hard and soft soles, and most invariably finds its place of exit at the heel. When the practitioner gets the case at this stage he is told that a gravel has worked out there. In this case, make an opening in the sole and you will always find a plentiful supply of pus. Inject into the upper opening a solution of creolin to wash it out; use it freely. Afterwards use a 5 per cent. solution of carbolic acid and glycerine. When you get the case when it first happens, remove the nail if it is there; make a good large opening; don't be afraid of a little blood; that is one great fault of the horse-shoer:

he is too much afraid to make a free opening. If it is cold weather, soak the foot for half an hour in warm water; if in hot weather, soak an hour or two in cold. The reason for this is that it gives comfort to the animal, and not for any remedial action. Then inject with the carbolic acid and glycerine solution.

Cases treated in this way rarely reach the suppurative stage. If a work-horse, take a piece of band iron, one-half or two inches wide, rivet it across the shoe directly over the opening; you can then fill it with absorbent cotton saturated with your disinfectant, which the owner can change every day with very little trouble. In this way the horse need not be laid off from work.

When a horse comes to you for examination for lameness, examine the foot; he may not show any signs of tenderness on percussion, but take your hoof knife and pare the sole carefully, as he has probably stepped on a board with a projecting nail; if such is the case, you will find a small dark speck hardly perceptible; follow this down and you will invariably find that it has pierced the sensitive sole.

A few years ago, when they used the old-fashioned cut-nails, they would break off and remain in the foot. Once in a while we find them now, but not very often. In a case where the joint is punctured, I make a cone-shaped opening, quite large; apply the glycerine solution; if much pain add tincture opii. Then fill the cavity with powdered oxide of zinc and charcoal, about 1-7, changing twice a day. If you have not already tried this treatment, try it, and I think you will like it.

"THE REVIEW is the best veterinary journal that has ever been published."—(*E. H. Morris, V. S., Derby, Conn.*)

THE world's milk record has been broken by "Dolly Bloom," a Guernsey cow, whose owner has been made richer by 17,297.51 pounds of milk, or about 2023 gallons, during twelve months recently completed. The record is official and is promulgated in the report of Wm. H. Caldwell, Secretary of the American Guernsey Cattle Club, at its meeting in New York City last month.

TREATMENT AND PREVENTION OF BOVINE TUBERCULOSIS.*

IMPORTANT STEP TAKEN BY THE ARGENTINE GOVERNMENT.

TRANSLATED BY DR. WILFRED LELLMANN, PROFESSOR AT NEW YORK UNIVERSITY.

In order that the Argentine Republic might profit by the new discoveries in the treatment of tuberculosis, Mr. Ezequiel Ramos Mexia, Minister of Agriculture at Buenos Ayres, in July, 1906, requested our *confrère*, Prof. J. Lignières, Director of the National Institute of Bacteriology, to make the following proposition to those investigators who had studied this subject:

"The Government, at its own expense, places at the disposal of the scientists possessing an efficacious remedy against tuberculosis highly valuable brood cattle imported from Europe, which are generally slaughtered, because of their reacting to tuberculin."

These animals, the average price of which is 10,000 francs, and among which at times are champions of the first class, were bought in England at 40,000–50,000 francs; they are apparently in excellent health, well taken care of, and their tubercular lesions are mostly minute. It is evident, that if a treatment be at all efficient, it should be so in these animals. It would be an entirely different matter, if it were a question of curing some emaciated consumptive cows, with lung cavities and extensive lesions.

Of all the scientists called upon by Mr. Lignières, in France, Germany, Italy and Belgium, so far only Professor von Behring has accepted the proposition of the Argentine Government. The latter at first was interested only in the curative treatment of tuberculosis, but upon the urgent desire of Professor von Behring consented to test his Bovovaccine at the same time. For this reason, articles 9 and 10 have been added to the fol-

* From *Recueil de Médecine Vétérinaire*, March 15, 1907.

lowing contract. From article 4, it can be distinctly seen that the door is left open for other experimenters.

CONTRACT.

The following has been agreed upon between the Minister of Agriculture, party of the first part, and Prof. von Behring, party of the second part:

(1) The Argentine Government, desiring to utilize the imported animals which have responded to the tuberculin test and which at present are slaughtered as tuberculous, without yeilding any profit, agrees to establish, under its direct supervision, a hospital for stalling these animals. All or a number of these are placed at the disposal of Prof. von Behring, who agrees to apply to them his curative method which, experimentally, has proved efficient in guinea-pigs, sheep and cows.

(2) Prof. von Behring agrees to send his first assistant, Dr. Paul Rœmer, to Buenos Ayres, to apply his curative treatment to the imported tubercular cattle. The duration of Dr. Rœmer's mission will be one year.

(3) As remuneration Dr. Rœmer receives, at the time of signing the contract, and for traveling expenses to Buenos Ayres, the sum of M. 2,000. From the day of his arrival at Buenos Ayres, he will receive a monthly salary of 1,000 piastres, paper money. After the termination of his mission, Dr. Rœmer will receive 1,000 piastres, to defray his return traveling expenses.

(4) Dr. Rœmer, acting according to the instructions of Prof. von Behring, will be the sole judge of the nature, the manner, and the intensity of the treatment. He cannot demand the placing at his disposal of all the imported animals reacting to tuberculin, but simply a number of them. The right to control the course and the results of the experiments is vested in a special commission appointed for this purpose by the Minister of Agriculture. In no case has this commission the right to control the manufacture of the remedy, nor can the commission demand that the remedy be put at their disposal.

(5) When, according to Dr. Rœmer's opinion, the treated animals are to be considered as practically cured, he must furnish the proof to the commission, and if the commission be convinced of it, the cured animals will be delivered to their respective owners, and their state of health will be controlled from time to time, under the supervision of the said commission, for a peroid of three years. A certain number of the treated animals will be killed and autopsies performed before the commission, when Dr. Rœmer must demonstrate the results of the treatment. Finally, some of the breeding animals will be killed, to serve as controls, without having received any treatment whatever.

(6) The Argentine Government agrees to pay for the curative product at the rate of 1 piastre, paper money, for every injection, on the condition that the total treatment of each sick animal ordinarily will not exceed ten injections.

(7) In case the Argentine Government or Prof. von Behring should consider the continuation of Dr. Rœmer's work until the end of the year inadvisable, the present contract will be cancelled, neither party being entitled to indemnification, excepting the 1,000 piastres provided for as the return passage of Dr. Rœmer.

(8) Whether the mission has lasted a year or not, and if the results have proven the efficacy of the treatment, Prof. von Behring agrees to have the Argentine Republic profit by his remedy, after the departure of his representative.

(9) Besides what is agreed upon in the foregoing, Prof. von Behring agrees at the same time to have his Bovovaccine tested by Dr. Rœmer, on animals to be furnished by the Argentine Government, and particularly reserved for this purpose. The Bovovaccine used for these experiments will be paid for by the Argentine Government.

(10) The program of the Bovovaccination experiments will be agreed upon in advance and must receive the approval of Prof. von Behring.

Berlin, February 12th, 1907.

In conformity with article 10, Prof. Lignières has drawn up the following program, accepted by von Behring, and which, together with the preceding contract, signifies the thoroughness and the importance of the experiments to be made at Buenos Ayres:

"Program of Bovovaccination Experiments to be made in the Argentine Republic as per agreement between the Argentine Government and Prof. von Behring, and according to which the Government is to place at the disposal of one of my collaborators (Dr. Rœmer) 200 head of cattle. Calves at the age of from 20 days to three months, coming from non-tuberculous herds, and which have not shown the slightest reaction upon a previous tuberculin-test, are to be bovovaccinated.

"A first series includes 50 animals, 20 of which are to serve as controls, while 30 will receive the first vaccine at the hands of Dr. Rœmer. The first vaccine will also be injected, by the commission, into test animals, especially guinea-pigs, in order to ascertain its degree of virulence. After the first injection, the control and immunized animals will be left together under natural conditions of life, but without contact with other cattle. After three months the 50 animals will be tuberculin-tested; thereupon two of the vaccinated animals will be killed, dissected, and experiment animals inoculated with some of their organs, no matter whether the latter are healthy or not. Immediately afterwards, the remaining 28 immunized animals will receive the second injection at the hands of Dr. Rœmer. The second vaccine will be injected into experiment animals under the same conditions and for the same purpose as the first vaccine. The immunized and control animals will then remain together under the usual conditions of life. Three months after the second vaccination, all living animals of this test-series will be submitted to a new tuberculin-test. As soon as the results are known, two of the immunized animals will be killed, dissected, and susceptible experiment animals inoculated, by the commission, with their organs, whether healthy or not. At the same time—namely, at least six months after the second

vaccination—the remaining 24 immunized and the 20 control animals will be subjected to an immunity-test with bovine tuberculosis virus, by the commission; 5 immunized and 5 control animals will be injected intravenously; 5 immunized and 5 control animals will be injected subcutaneously; 14 immunized and 10 control animals will be placed in a separate stable and brought into immediate contact with tuberculous cattle (infection by contact). Six months after the immunity-test, all living animals will receive a tuberculin injection; hereupon 2 immunized and 2 control animals injected intravenously, as well as 2 immunized and 2 control animals injected subcutaneously, whether reacting or non-reacting, will be killed. As regards the animals exposed to natural infection, only those showing pronounced tuberculin reaction will be killed. One year after the immunity-test, the remaining animals will again be tuberculin-tested, and hereupon 2 animals injected intravenously, 2 animals injected subcutaneously, and 2 control animals dissected, whether they have reacted or not. Also 2 of the animals exposed to natural infection. Lastly, 1½ years after the immunity-test, that is, at least two years after the first vaccination, all remaining animals will be killed after a previous tuberculin-test. After each dissection, the commission is to inoculate susceptible experiment animals with tuberculous-looking and tuberculosis-suspected (?) organs.

"The second test-series also embraces 50 cattle, which, however, are placed in a different stable, and the vaccination of which will be begun four weeks later than that of the first series.

"In the third test-series of 50 cattle vaccination will be begun four weeks after that of the second series, and again at another place. But in all three series, the order of experiments will be the same.

"A fourth and last test-series will consist of thirty cattle, ten of which will be vaccinated at the same time as the first series; ten together with the second, and ten together with the third series. These test animals will not be subjected to any

tuberculin-test and are to be kept under natural conditions of life. A year later, ten of these animals will be tuberculin-tested and afterwards subjected to an immunity-test, together with control animals. The same experiment will be repeated, two years after the preventive vaccination, with ten other bovo-vaccinated animals. After three years, the last animals are to be tested in a similar manner, with tuberculin and afterwards by experimental infection with bovine tuberculosis virus. In order to facilitate the tests, the animals to be dissected will, if possible, be shipped to Buenos Ayres to be slaughtered.

"The cattle of each test-series will be under the observation of two veterinary surgeons appointed by the commission. These gentlemen will keep an accurate record of their observations as regards the state of health of the animals. J. LIGNIÈRES.

"*Paris, February 1st, 1907.*

"In connection with the foregoing program of experiments, it is understood that I have the right to use vaccines for the first test-series which were produced at Marburg and shipped to Buenos Ayres; for the second test-series, fresh vaccines made by Dr. Rœmer at Buenos Ayres; and, lastly, for the third series, a single vaccine in place of two. (Signed) E. v. BEHRING."

"*Marburg, February 14, 1907.*"

We shall keep our readers posted concerning these experiments. Meanwhile, we can confirm, that contrary to circulating reports, Professor von Behring is in excellent health, and that he has not left Marburg, where he is assiduously at work in his laboratory.

THE Manila (P. I.) *Cable News* of March 11 contains a photo and biographic sketch of Dr. R. H. McMullen, who left the Philippine Islands on that date for the United States, to accept an appointment on the staff of the Bureau of Animal Industry. An item in this journal for May stated that he had been assigned to duty at Milwaukee, but we have since learned that he is with the force at the Union Stock Yards, Chicago. The article above referred to pays a high tribute to the Doctor for his valuable services while veterinarian of the Port of Manila, and in his special work in eradicating rinderpest from the Archipelago.

MODERN VETERINARY METHODS.

By Walter J. Taylor, D. V. M., Ithaca, N. Y.

KINDS OF IMMUNITY.

Natural Immunity.—The term natural immunity has been applied to that condition or ability possessed by some races or species of animals that enable them to resist the natural invasion of infecting organisms that attack other varieties or species of animals. In so far as we know, it is a condition inherent in the very nature of the individual, born with it and transmitted to its offspring.

There are a number of very striking examples of natural immunity. The Algerian race of sheep are immune to natural infection of anthrax, whereas other sheep are very susceptible to it. The equine species are susceptible to glanders, but the ruminants are immune. Black-leg, which is very destructive to cattle, does not attack horses, the carnivora or man. There are, however, instances where there seems to be general immunity, but where individuals are occasionally attacked. Thus, it is not usual to find tuberculosis in the carnivora, but now and then a cat or dog is found suffering with the disease. While it must be admitted that all species may be infected with tuberculosis, there is much evidence to show that certain species are immune to it.

It sometimes happens that individuals belonging to a susceptible species resist infection. These are spoken of as possessing natural immunity; but this is not a satisfactory explanation, for in such cases it is practically impossible to state whether it is natural or acquired. In the present state of our knowledge of this subject it seems better to allow such cases to remain as examples of individual resistance. It has also been found in cases of marked natural immunity the resistance can be overcome and the animal infected by changing its normal physical condition.

Explanation of Natural Immunity.—There are a number of explanations of this phenomenon. In brief, they deal with the supposed actions (1) of the cells of the body, and (2) of the serums or humors.

Those who seek the cause for this condition in the cells find that phagocytosis, so ably described and demonstrated by Metchnikoff, is the source of the individual defence. Those who find the cause in the humors of the body rely upon the

germicidal action of the serum itself or of the substances set free from the cells that are present in the liquids. Metchnikoff seems to believe that the microcytase elaborated from the leucocytes acts as a solvent directly upon the bacteria.

The lateral-side-chain theory of Ehrlich assumes that the cells of certain animals do not possess the necessary combining molecules (receptors) with which the haptophore group of the atoms of the toxin molecule could unite, thus the destructive action of the toxin upon the cell is prevented. This theory refers the immunity to the resistance of the animal tissues to the toxine. A study of the subject, however, shows that while many interesting facts have been brought to light, a satisfactory explanation of the cause of natural immunity has not appeared.

Artificial Immunity.—As the term implies, this is immunity brought about in the individual after birth. The most common form is found in the individual that has survived an attack of an infectious disease. The most striking examples of this are cases of recovery from small-pox and yellow fever in man and Texas fever in cattle. All of the exanthematous diseases leave the individual with more or less immunity. In some other infectious diseases, like tuberculosis, there seems to be very little, if any, increased power of resistance imparted to a patient who has recovered from the first attack. In such acute diseases as diphtheria, the duration of the immunity resulting from a natural attack of the disease is somewhat variable. In artificial immunity there is great variation in the period of duration.

The fact that individuals that had passed through certain diseases were rendered immune, led Pasteur, Salmon, Smith, and others to inquire into methods for artificially immunizing animals against the infectious diseases most destructive to them. The first experiments of this kind on animals appear to be those of Pasteur, who found that inoculating animals with attenuated virus would immunize them against inoculation with a strong virus or naturally acquired infection. He promptly succeeded with swine erysipelas, chicken cholera and anthrax. Later he succeeded with rabies. Arloing, Cornevin and Thomas and Kitt introduced a successful method of preventive inoculation with attenuated virus against black-leg. The method has been tried with a number of other diseases with less satisfactory results.

The next procedure was a line of investigations directed toward the production of immunity by the use of toxins or heated cultures of the bacteria. The first of these was an im-

munization of pigeons against hog cholera by the use of heated bouillon cultures of the bacillus of hog cholera by Salmon and Smith in 1886. This method was followed by similar results by Pasteur with chicken cholera. This line of investigation led eventually to the immunizing of animals experimentally with the toxins of heated cultures of certain virulent pathogenic bacteria, such as diphtheria and tetanus.

It has been found that the blood serum of animals that are immune to certain bacterial diseases possess antitoxic properties by which it is able to impart immunity to healthy susceptible animals, or to act as a therapeutic agent for those affected with the same disease. Diphtheria is the most striking example.

Toxic Immunity.—This form of immunity in an individual is due to the presence in the body of an antitoxin. Whether acquired through natural or artificial conditions, there appears to be a sufficient number of free receptors or antitoxin molecules already present in the body to neutralize or lock up a like number of toxin molecules which may be introduced and thus prevent harm being done to the tissues.

Bacterial Immunity.—Bacterial immunity is due to the presence in the body of a substance of bacteriolytic nature. That is, a substance which is capable of destroying bacteria when introduced into the body. Thus it has been found that in cases of immunity against diseases of bacterial origin that if the specific microörganism capable of producing that disease be introduced into the body the organisms swell up, become granular and finally disintegrate and disappear. This has been especially well demonstrated with patients known to be immune to the cholera vibrio. This condition is known as Pfeiffer's phenomenon.

Methods for Artificially Producing Immunity.—The present knowledge of the subject shows that immunity may be produced in several ways other than by causing the individual to pass through an attack of the disease caused by natural infection. Summarized briefly these methods are as follows:

1. By inoculating the individual with a non-lethal dose of a strong virus. This is practiced in immunizing cattle against Texas fever, sheep-pox and contagious pleuro-pneumonia.

2. By inoculating the individual with attenuated virus. This is practiced in anthrax, black-leg, chicken cholera, *rouget*, rabies and bubonic plague in man.

3. By inoculating the individual with vaccine consisting

of the virus of the disease modified by continual passage through another species of animal, as vaccine for small-pox.

4. By the injection of toxins. In practice this is used for immunizing animals such as horses against the virus of the diseases for the purpose of procuring antitoxin from their blood, as in diphtheria and tetanus.

5. By the injections of antitoxins. These are used to immunize animals against toxins, and children against natural infection, as in diphtheria.

Depending upon the method by which artificial immunity is produced, the immunity thus secured is spoken of as active or passive. These together with protective inoculation will be treated next time.

CALIFORNIA'S NEW VETERINARY LAW.—An act has passed the California Legislature and was approved and signed by the Governor on March 23d, establishing a Board of Veterinary Examiners and otherwise considerably enlarging and improving upon the old law of 1893 and its amendment of 1903. Every applicant for a license must be a graduate of a recognized school having a term of at least two sessions of six months each and must have been in actual practice for at least five years prior to the application. It includes under its terms every branch of veterinary medicine, there being no escape from its provisions through misleading titles, such as "veterinary dentist," "veterinary farrier," etc. While it is to be regretted that it failed to make the three-year college its minimum acceptance, it contains so many improvements over its predecessors that the profession should feel that distinct progress has been made upon the Pacific Coast, and hope that a future amendment may close the door against this discredited diploma. All violators of the law are made guilty of a misdemeanor, punishable by a fine of not more than $200 or imprisonment in the county jail not longer than six months, or both fine and imprisonment. The Governor has appointed the following veterinarians upon the Board of Examiners: Drs. David F. Fox, Sacramento; Ward B. Rowland, Pasadena; T. W. Orme, San Bernardino; E. J. Creely, San Francisco; and R. A. Archibald, Oakland. The Board will hold examinations in January, April, July and October of each year, and they are authorized to arrange reciprocal relations with other state examining boards so that licenses may be mutually recognized.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

SUCCESS AND FAILURE.*

By C. C. MILLS, V. S., Decatur, Ill.

Success and failure are not widely separated. They represent opposites, but the one is so often turned into the other by so little effort or so slight a circumstance that the conservative professional man develops a large measure of caution. What constitutes a success from the scientific or clinical point of view may not be the success which brings profit to our patron in every instance. We meet cases every day in which we are compelled to advise from the standpoint of the actual cash value of our work to the owner of the patient. A patron of mine says: "My horses are slaves. I have no earthly use for them or consideration for them, except for their capacity to earn the dollar for me. When they fail to do this with certainty I am done with them." To many owners of faithful animals and to those of us who are controlled somewhat by sentiment, perhaps this declaration may seem a little harsh. As a matter of fact, it is, after all, the basis, in a more or less modified degree, upon which we are called upon to consider the application of our profession in at least nine cases out of ten. The value of a horse presented for treatment must usually be taken into consideration as well as and in conjunction with the disease or injury or blemish. The veterinarian will be called upon in one day, and perhaps with the same patient to pose at the horse market, to picture the ills of an animal from unspoken and possibly misrepresented symptoms, and to render a prognosis which varies in demands from the length of time the patient will be out of work to how much he will be worth when he recovers. Upon his aptness in handling these inquisitions will depend largely his success or failure, with some patrons at least, equally as much as upon his skill as a surgeon or his ability as a diagnostician and prescription expert.

I feel assured, however, that your experience coincides with mine in that many cases are presented which give little prom-

* Presented to the Illinois State Veterinary Medical Association, July 12, 1906.

ise of results which still make one feel that a trial would not be devoid of interest. However, even a successful isolated case does not prove a procedure or an operation practical, but a summary of all similar results, or a suggestion for a future trial, may yield something definite. It was with this idea in view that I undertook the operation which I am about to report and which I termed

A RADICAL OPERATION FOR DOUBLE NASAL PARALYSIS OR COLLAPSE.

The subject was a gray mare, perhaps ten years old, and was brought to me with the history that symptoms of collapse over the false nostril had been noticed for at least six weeks or two months. A qualified practitioner had prescribed treatment about three weeks previously. This consisted of stimulating liniment applied over the face and affected region. The mare continued to grow worse and was presented to me for examination April 17, 1905. I gave my opinion that there was but little chance for recovery, as I had previously had some very unsatisfactory experience with double facial paralysis. The owner could illy afford to lose the mare, as she was one of his only team. He had not owned her long before these symptoms first appeared, but had known her for several years previously. At this particular time the animal showed very slight falling in of the skin over the false nostril at each inspiration while quiet and the nostrils would neither distend widely nor collapse materially. Upon a brisk trot or pull or up hill travel the depression over the false nostril was quite marked and the nasal cavity near that point almost occluded; the paralysis of the muscles allowed almost complete collapse of the alar cartilages and consequent severe dyspnœa.

The owner insisted on a trial treatment. Having had no results in previous cases from the administration of strychnia hypodermically over the facial nerve and its branches, I did not resort to it in this case. I prescribed nux vomica and ipecac internally, and Fowler's solution in increasing doses in the feed. In two weeks she was again presented, with no signs of improvement at least, and I directed that she be turned upon pasture, as she could not stand work at all.

I had given an unfavorable prognosis, but in the course of conversation I had mentioned the possibility of making an artificial opening into the nostril at the point of greatest depression to arrest the collapse by admitting the air, but without much thought of the method to be employed or much expectancy for

an opportunity to try it. The middle of June found the paralysis still more marked and the mare practically useless for driving or field work. She was brought to my infirmary by the owner with the determination for an operation if anything could make her even useful. I gave her as close observation and study as possible for a number of days in my hospital for the purpose of deciding upon the best method and awaiting an opportunity to operate. When satisfactory opportunity offered, the ordinary antiseptic precautions were taken and an elliptical section of skin, 1½ inches to 1¾ inches long and ½ inch wide at its greatest width, was removed, making an opening into the *cul-de-sac* or false nostril. The inner border of the incision was made conveniently near the outer border of the nasal peak, and its extending cartilage and the outer lip of the incision correspondingly near the maxillary bone and the alar cartilage. Then the inferior or dividing wall of the false nostril was also divided at as great a length as possible, and a little of the borders of the incision removed near the middle. This last incision you may note extended close to, and nearly parallel with, the upper border of the superior part of the alar cartilage, for perhaps half the length of the incision. Only enough border of the lining of the false nostril was left next the cartilage to retain stitches in suturing. With forceps and needle then the corresponding borders of the incised *cul-de-sac* and the skin were brought together tightly with numerous sutures, bringing their fresh raw edges in apposition. Without further prolonging the description, you will readily see that these openings thus made served a double purpose of admitting air into the nasal cavity above the collapsed portion, and also to forcibly elevate and retain the superior part of the alar cartilage. I kept the patient under my care for several days and union took place largely by primary adhesion. The mare was trotted up and down with ease, and was soon ready for work with but little further attention. Dyspnœa was but very slight, and while there was still noticeable an attempt at collapse, yet she was put to the plow and kept steadily at farm field work, where she had proved useless before. In sixty days she was reported much improved, in the owner's opinion, and three months after the operation an examination was given and the artificial openings were plugged with absorbent cotton, with no interference in breathing and no collapse as formerly. The edges of the original incisions were scarified and drawn together by sutures and covered with absorbent cotton and collodion. Union took place, but with some

little difficulty on one side, on account of the patient interfering by rubbing. Patient still continues well.

Now, the demonstration was clear as far as immediate results for work were concerned, but did the operation have anything to do with the ultimate recovery?

A CASE OF MYSTERY.

Now, I have a blank failure to present, with your indulgence, and solicit your free expression of opinion. It is not my only failure, by any means. A more complete failure, perhaps, is not frequent, for in this one I failed either to diagnose the case or to derive any known benefit from treatment administered by me, and then finally was even foiled from an expected opportunity for a post-mortem examination.

This patient was a grey gelding, 8 or 10 years old, and the property of an energetic teamster without feet. April 14, 1906, this case was described to me as having had distemper for two weeks, coughing considerable, discharging at the nose, and occasionally being delicate about eating. On this date he refused to eat his morning feed, looked a little dull, slabbered and coughed considerably at intervals. Owner wanted medicine for cough, and it was given after bringing out the above data. If he had been given anything previous to this I could not find it out, but I suspicioned that tar or coal oil had been administered. I have no evidence that such was the case.

April 16 the patient was presented for admittance to the hospital. A careful examination was made. Temperature was found to be normal, pulse good, full and strong, with pulsations about 40 to the minute. Respirations not labored nor accelerated beyond what slight exercise would produce. Parotid and maxillary glands not noticeably thickened. Extremely slight traces of the catarrhal trouble from which he probably had originally suffered. No discharge from nose, no fœtor of breath, no soreness on pressure at throat. Bowels slightly costive. Gave a guarded opinion, but expressed my belief that the trouble was a sequel of the influenza attack; influenza having been quite prevalent with numerous aggravated complications. He was given a roomy box stall and the owner told that he would probably be all right in a few days. He would munch a little at his feed and then stand with head and neck drooped. The lungs appeared clear, and no grunt nor irregular pleural sounds could be detected. There was no stiffness and no tucking at the pleuritic line. Ears were a little drooped outward, and occasionally the horse would paw with a slow raking mo-

tion. His mouth and lips, from external appearances, were no more than normally moist, and there never was any constant drooling of saliva. At intervals, however, of from one-half to three hours, according to the particular day, he would open his lips, work his tongue and jaws a little, and a great quantity of saliva, as white and foamy as soap suds, but with more consistence but not stringy, would literally fall in bunches from his mouth. In a minute the usual position was assumed again. Horse remained standing most of the time, but frequently laid down, and often stretched himself upon his side and apparently rested comfortably. He never rolled or exhibited signs of distress while down. Patient was given an aloes physic and was placed on tonic treatment with stimulants. Nux vomica, gentian and alcohol were given. In a few hours he was eating hay with quite a little relish. The next day he almost refused to eat any dry feed or attempted to eat more than a mouthful or two of anything. He would eat grass if a little was brought to him; and was taken out to graze for a little while each day. Picked fresh grass very nicely. Foregoing symptoms continued with alternating periods of slight improvement and a fair appetite to complete loss of appetite and persistent recurrence of the above-noted perplexing manifestations. A mouth speculum was adjusted and the mouth manipulated and examined by the hand even into the throat. No obstruction, no ulceration and no soreness was found. Teeth were floated a little to remove all possibility of irritation from that source, but no sore gums or teeth were found. Hypodermic injections of strychnia were administered and repeated doses of whiskey were given with no better results. Then drachm doses of potassium iodide were given, but saliva continued to fall in wads to the floor, forming on some days a pool of foam. In desperation I administered drenches of bicarbonate of soda in liberal doses and gave four-ounce doses of raw linseed oil with half ounce turpentine, repeated two or three times a day. Pawing and slight distress followed the drenching process, for which he had no particular liking. No encouragement followed, and I informed the owner after six or seven days of my failure to get results, and told him if he wanted to have another doctor see him that I would not stand in the way. He declined, and I asked for a few days more to treat the horse at my expense, since the owner was such a cripple and yet worthy of assistance. The chance was cheerfully given, and sub-nitrate of bismuth was given in two and three drachm doses three times a day. On the 25th,

after ten days of constant treatment, the patient was discharged from the hospital while eating a little, but apparently no more permanently improved than the day he entered. He had lost quite a little in flesh. The temperature had been taken daily and was never elevated.

He was taken home and allowed to stand or lie about as he chose and he exhibited only a continuance of his former symptoms except that perhaps he would lie down more and stretch broadside upon the ground. I have it from the owner that after two or three days of this it occurred to him to give him coal oil. He promptly drenched him with a quart and went up town with the expectation, he says, of finding him dead on his return. On seeing him again in three or four hours, however, the patient was up and eating grass and dried weeds that had been cut and left lying about. Another pint of coal oil was administered that evening, and still another the next morning. The horse took to eating everything placed before him, the owner contends, and not long afterward I saw my patient at his former work on the streets. I have seen him frequently up to date and he continues well and hearty and never misses a feed and has regained his former flesh, but I am still as much in the dark as ever as to his ailment or the physiological action or medicinal value of the remedy applied so heroically.

MALIGNANT ŒDEMA AND PARTURIENT PARESIS.

By C. E. McCALL, V. S., Roachdale, Ind.

In the March number of the REVIEW I notice reports of some interesting cases, namely, "Malignant Œdema," and two cases which reacted to milk fever treatment.

Having had some experience along practically the same lines during the past month it might be of some interest to readers of the REVIEW if I should report them.

Case I.—On March 20th I was called to see a large bay gelding, twelve years old, and weighing about thirteen hundred and fifty pounds, the owner stating that the horse had lain down upon a nail and he feared blood poison would develop if something was not done, as the leg was considerably swollen. When I arrived at the farm I found the horse standing in the driveway of the barn with the limb in a state of flexion and swollen to twice its normal size. The owner stated that upon the night of the 17th the horse had kicked a board off his stall, and the

next morning he had found it in his box with the nail protruding upwards; did not notice anything wrong with the horse until the morning of the 19th, when he noticed the limb was somewhat swollen in the region of the thigh. Upon examination he was unable to detect any abrasion of any kind and did not think much of it, but proceeded to bathe parts with hot water and salt. Upon arising on the morning of the 20th, the limb being enormously swollen, and causing considerable pain, I was called.

Upon examination I found a nail puncture in the region of the trieeps abductor femoris muscle about the level of the superior extremity of the tibia and about the middle of the thigh, from which was oozing a fœtid bloody discharge. Upon palpation a hollow-like sound was audible. When pressed upon for quite a distance around the seat of infection a crackling sound was emitted, giving one the impression of a "quarter-ill" swelling. Further than this area the swelling was hot and doughy to the touch. The horse was very much averse to being moved, and when forced to do so there would be ejections of gas and bubbles from the puncture. Pulse full and bounding, sixty per minute; temperature 101½°; horse eating some, but remained standing continually, probably through fear of being unable to arise if down. Diagnosis: Malignant œdema. Prognosis: Unfavorable. Therapeutics: Made several pyro-punctures, from which exuded a fœtid bloody discharge, containing gas and bubbles, opened puncture well by laying open to bottom with knife; flesh seemed to be in an advanced state of decomposition and easily broken down with the finger; bathed parts well and washed out punctures with bichloride hg. 1-1000; gave ferrous sulphate dried ℥ss, pulv. cinchona bark ℥ij, quinine sulphate ℥ss, to be given every six hours, bichloride 1-1000 to be used locally three times a day.

Did not see horse again, but owner informed me the next morning that the swelling was increasing and that he did not think it would be of use to have me see him again. He reported the horse down and unable to arise that evening, seemingly in a great deal of misery, pounding his head against the sides of his stall and struggling violently. He died about ten o'clock the same evening.

Owner informed me afterward that he had never seen a horse suffer such agony, and that the whole quarter became gangrenous before he died and that the anus was swollen as large as one's head.

Case II.—The second case was that of a cow, nine years old, and in good condition, giving about twenty quarts of milk a day and apparently in the best of health; had not calved since the first days of August and was not with calf at the time.

I was called to see her on the evening of April 2d. The owner stated upon my arrival that the cow was apparently all right and had given the usual quantity of milk that morning and that he had not noticed anything wrong with her, but about the middle of the afternoon he had noticed her lying down in the pasture, when he called her preparatory to doing his evening milking. She paid no attention to him. When forced to arise she did so with great difficulty. Being close to the barn, the owner decided to get her in her box, but when forced to move did so with a great deal of staggering, and her gait was very uncertain.

Upon my arrival I found the cow lying down in her box with head held in the characteristic position and kink in neck always seen in milk fever before the comatose stage. Pulse not much affected; temperature 98$\frac{4}{5}$°, breathing about normal. When forced to arise made several attempts before doing so and when up staggered about box, having great difficulty in keeping her feet; did not remain up but a minute before going down again, seemingly exhausted. Milked udder dry and waited thirty minutes or three quarters of an hour to see results. Cow seemed to be sinking rapidly at end of this time, lying upon sternum with head turned to side, nose resting upon ground in semicomatose condition. Declined to make any positive diagnosis, but inflated udder with sterilized air and tied teats with tape; gave hypodermic injection of strychnine, and awaited results. At the end of one hour she did not seem to be improving much; gave magnesium sulphate 1 lb., dissolved in one quart warm water, to which was added ℥i fl. ex. nux vomica, arom. spts. ammonia, ℥i. It being twelve o'clock, left spts. nit. aeth., ℥iij, fl. ex. nux vomica, ℥iij, to be divided into three doses and given every 4 to 4½ hours in pint water. I left, stating that I would return in the morning. When I returned the owner stated that he had found the cow standing when he arose at 4 A. M. He removed tape from teats; she seemed just a little weak in hindquarters. At six she ate a gallon of bran and oats; at nine I gave her a bucket of water, which she drank, and ate several small ears of corn which were given her. Pulse, temperature and respirations normal. Turned her into pasture; she walked to foddering place and began

picking fodder, apparently all right. No further treatment after supply was exhausted.

I might say that the cow gave no milk of any note, and did not for almost a week, at the end of which time she began to increase in her flow and in a few days was giving as much as ever.

What was it? And what was the curative agent? Was it the milk fever treatment, or was it the other?

THROMBOSIS FROM A CLINICAL STANDPOINT.

By A. W. BAKER, V. S., Brasher Falls, N. Y.

In regard to the article in the April REVIEW on "Thrombosis," I will say that I was called to the town of Madrid, St. Lawrence County, about a year ago last December, and saw a brown mare, 16 years old, weight 1,200 lbs. This mare was and had been a family pet; she did farm work and was driven to town on an average of twice a week, single and sometimes with her mate.

History:—The year before the owner noticed that after cold weather came he drove her to Madrid one day and she was quite lame. She being with foal, he did not use her the rest of the winter. One veterinarian told him it was a spavin and advised him to let her run in the barn-yard or shed, which he did. She had her colt all right and raised it. The following fall, after her colt was weaned, he began to work her. That is the time she got so bad she went down on her way home in a team. The veterinarian told him it was azoturia; they let her rest, and in a half hour she was able to finish the rest of the journey.

Dec. 8 I was called, and had to drive five miles. On the way I questioned the owner about the case, and he gave me all the information he could. I had seen one case before having the symptoms he gave me. I thought it must be thrombosis. When we got to the farm I made an examination. Pulse normal (40), respirations 10 and temperature 100.1, health good. This mare had not been out of the barn since November 28. I remarked to the owner that if it was thrombosis to trot her out and she would not go far before she would show the symptoms. He trotted her to the halter about 20 rods and back to the barn. She showed lameness coming back; he put her in the barn; she was there just four minutes when she went down, laid there 22 minutes, then got up and it was time to feed for noon. She eat three quarts of oats, and appeared as well as ever. I advised him to kill her. He looked surprised to think that I should order her destroyed. I remarked that was all the cure

I could give him. He said that the veterinarian who diagnosed spavin would fire and cure her. I replied that it was impossible to cure her. I asked the owner if he noticed the perspiration when down and the hurried respirations and how the eyes appeared and the dilated nostrils. He said ne noticed that each time she had an attack and only when she was driven, and it was worse each time. He asked if I could not do something for her. I informed him I could if he would get me a gun. "Why," he said, "that mare is worth $150." I told him not to-day.

I think those cases cannot be mistaken after you see one case; it is as plain as a case of tetanus by the symptoms. The first case I saw a few years ago. It was on the road to the next town, on my way to Potsdam. A gang of Gipsies were encamped by the roadside, and the man had traded with them and started homeward; he had not gone over a half mile when the horse went down. I did not know what was at first the trouble. I thought it was sciatic rheumatism or lumbago; he tried to get the horse up, but could not. I told him to let him rest; in the meantime I injected 10 grains of sulphate of morphine in the hip; in ten minutes he was on his feet; he led him home. The farmer did not have the prize that he thought he had. I lost track of the horse afterwards. Now I think I can tell a case just by the appearance of the animal when he goes down.

The Madrid farmer had his mare shot; he would not dispose of her. The owner's name was John Hunter, of Madrid.

[NOTE.—While the two cases recited are very interesting from a clinical standpoint, the va'ue of each for record purposes is destroyed from the failure to hold a post-mortem to confirm the diagnosis.—EDITOR REVIEW.]

GALLOGEN FOR SCOURING ROAD HORSES.

By G. T. ELLIOTT, V. S., Bristol, Conn.

For some time having felt the need of an intestinal astringent which would not irritate the stomach nor become active until reaching the intestinal tract, it was with considerable interest that I read a description of Gallogen.

This drug is derived from the pods of a shrub growing in the West Indies and South America, the *Carsalpinia coriaria*, its acid being insoluble in water, alcohol and acids, and slightly soluble in alkaline liquids.

At once decided to make a trial on a very obstinate case. The subject was a nine-year-old mare, rather thin in flesh. For the past two years she had been almost useless for road work

on account of a catarrhal condition of the bowels, which caused her to scour profusely after having been driven two or three miles. Had pursued several different lines of treatment, but without success. Administered Gallogen, ℥ iij, three times a day for four days, and after an intermission of one week repeated the treatment, since which time, about six months ago, she has been used constantly on the road with no recurrence of her former trouble.

In another instance a draft horse used on slow work and short hauls was presented for treatment. The owner reported that the horse had been scouring for six months, and that he had tried everything without giving relief. Gave him twelve ℥ iij powders of Gallogen to be given in feed three times a day. The owner called five days later for more powders and reported a great improvement. A cure was effected before the second lot of powders was used, and since then, a period of seven weeks, the horse has been performing his regular work and improving in condition.

Have used Gallogen in numerous other cases and have yet to record a failure.

I trust that the publication of my experiences may be of benefit to other practitioners. Gallogen can be procured from C. Bischoff & Co., 451 Washington street, New York.

TWO IRREGULAR CASES OF PARTURIENT PARESIS.

By J. F. DeVine, D. V. S., Goshen, N. Y.

No. 1.—A five-year-old grade Holstein. Calved 10 weeks previous; been in excellent health until this morning, when she is found down and comatose, with usual symptoms of parturient paresis. Diagnosed as such and udder inflated, leaving a heart tonic with directions to be given as soon as consciousness returned. Up and ruminating in four hours.

No. 2.—An eight-year-old Jersey. Aborted two days previous, being the sixth month of pregnancy (no mistake as to the period of gestation, since two small, hairless calves gave evidence as to its correctness), retaining the membranes and having eaten nothing since calving. Is now down with the usual symptoms of parturient paresis, coma being so profound as to make it uncertain at times whether or not respiration had been suspended. Same treatment as No. 1, and called again in three hours, when she was sitting erect; got up during the night, but was slow to convalesce.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

ULCERATION OF THE LARYNX [*V. S.*].—An old gelding is kept at regular work. One morning, while in harness and driven out, he is suddenly taken with violent roaring, stops, staggers and falls. Taken to the stable he is seized with violent cough, lasting some ten minutes. When he is seen, all the acute symptoms have disappeared. A diagnosis of spasm of the larynx is made and expectant treatment established. The horse was seen twice the same day and twice the next, but was always apparently well. The attendants reported, however, that he had had several attacks of very severe cough. Finally a mustard poultice was applied on the throat, at the earnest demand of the attendant. But as soon as the effects of the mustard began the horse suddenly fell down, and, after a short struggle, died apparently from suffocation. Post-mortem: All the organs normal except the larynx. Each vocal cord presented about the centre of its free edge, a small circular and apparently recent ulcer, about the size of a three-penny piece and penetrating through the mucous membrane. The two ulcers were in exact apposition, and the mucous membrane was congested. Lesions of glanders were altogether absent.—*(Veterinary Record.)*

PAPILLOMATOUS TUMORS IN A BUFFALO [*Joachim DaCosta, G. B. V. C.*].—It is the record of a case in which the subject, a buffalo of five years, had a bunch of papillomatous tumors hanging from the right thigh, tumors which had grown very much lately and were interfering with the general health and also the usefulness of the animal. The mass was removed with an ordinary castration clam and cautery. It weighed six pounds and a half. Smaller growths existed on various parts of the body and were taken off with the knife.

NOTES ON INTERESTING CASES [*Hugh Begg, M. R. C. V. S.*].—At a meeting of an English society, the author related two interesting cases of complications accompanying castration. In the first case it was a two-year-old colt, which had not been operated upon before, because the owner had suspected him

suffering with scrotal hernia. Mr. Begg had examined him often and had never succeeded in discovering anything abnormal. He was then operated upon with all possible cares, and after he had gotten up, he was allowed walking exercise for a while and put in a comfortable paddock. Half an hour later Mr. Begg was called and found that four feet of intestines were protruding. To reduce these it was necessary to enlarge the internal inguinal opening. The wound was then well packed and the scrotum stitched. Complete abstinence was ordered, with the exception of a little chilled water now and then, and a small quantity of tincture of opium. The animal had some fever afterwards, but this subsided after a few days and recovery went on without any more trouble. . . In the second case, that of a cryptorchid, there came a dropping of the intestines as the second testicle, the one in the abdominal cavity, was removed. It was a cystic testicle, with a large cord and it was necessary to puncture it before extracting from the abdomen. After the removal of the testicle the wound was packed and the animal taken, when over the anæsthesia, into a box stall. On dressing the wound the next day a piece of intestine was found in the scrotum. The wound was cleared of all the padding, thoroughly disinfected, the bowel pushed back in its place. The canal was repacked and the scrotum sutured. There was no further trouble.—*(Veterinary Record, March.)*

OVARO-HYSTERECTOMY IN A BITCH UNDER LOCAL ANÆSTHESIA [*W. H. Thomas, M. R. C. V. S.*].—A Samoyede four-year-old bitch had been in labor all the previous day, had passed with difficulty four dead pups of rather large size. She had several doses of ergot, with no results. On examination the presence of another pup was revealed; it was a breech presentation and efforts to remove it by vagina were ineffectual. Temperature 104° F.; bitch exhausted; ovarohysterectomy was decided upon, and as the animal was too weak to stand general anæsthesia, chloride of cocaine was resorted to. The operation was performed with all antiseptic cares possible. When the uterus was exposed, two large spots of gangrenous aspect were observed and demanded a great deal of care in bringing the organ outside of the abdomen. The amputation was made in the usual way, the animal showing only a little pain when the ligatures were applied above the ovaries. There was no trouble after the operation except a little discharge due to the injury of a small mass of mammary glandular tissue which had been touched during the operation. Recov-

ery was uninterrupted. The interest of the case is on the condition of the uterus at the time of the operation and the use of local anæsthesia in such a major operation.—*(Journal of Comparative Pathology, March.)*

HIGH PLANTAR NEUROTOMY [*J. F. Craig, M. A., M. R. C. V. S.*].—A review of the anatomy of the plantar nerves of the front and hind legs in relation to the proper place for the operation of neurotomy. It shows good illustrations of the dissection of the outside and inside of the metacarpal region, with also the measurement, in inches, of the termination of the plantar nerve and the origin and attachment of the oblique nerve, from the level of the button of the splint bone, as taken in thirty animals for the fore and as many for the hind leg. Conclusions: "For the fore leg, on the outside, the incision should be made ¾ inch to 1 inch in length, vertically along the antero-lateral aspect of the flexor tendons, and the upper extremity of the incision should be on a level with the button of the splint bone. The length of the nerve corresponding with the length of the incision should be excised." "On the inner side, the operation may, with advantage, be performed higher up than the button of the splint bone, so as to more completely avoid the danger of opening into the great sesamoid sheath." "For the hind leg, to ensure the whole of the fibres in the external plantar nerve being cut through, the upper extremity of the incision should be made about ¼ inch below the level of the button of the splint bone at the antero-lateral aspect of the tendons. Thence the incision should be carried vertically downwards for a distance of about 1¼ inches. For the internal plantar nerve, the operation may be performed higher up, as in the fore leg."—*(Veterinary Journal, April.)*

CHRONIC METRITIS IN THE MARE [*Prof. W. L. Williams*].—A long and carefully written article in which the author gives a minute description of the symptoms of this trouble in mares. General depression, some emaciation and a discharge of pus from the vulva varying in aspect and in quantity. It may vary between a few pints to four and five gallons. Rectal and vaginal explorations are essential for a correct diagnosis. After a few words on the etiology and the pathogeny of the disease, the author insisting wisely upon the necessity of dilatation of the *os*, so as to allow direct therapeutic interference, dilatation which is sometimes very difficult to obtain, recommends the free use of disinfectants and principally the permanganate of potash in weak solution, or carbolic acid, tannin, glycerine and

water and sublimate solution. Iodoform introduced as powder and thrown on the uterine mucous membrane is also very good. Besides the local treatment, tonics and antiseptics are indicated. The Professor insists on the fact that the animal should be kept essentially under treatment carried out by a veterinarian and never be trusted to a layman. The article is completed by the detailed description of eight cases where a satisfactory result was obtained in a very short length of time.—*(Veterinary Journal, April.)*

MOUTH TUMOR IN A DOG [*R. Lewis Green, M. R. C. V. S.*].—Fox terrier had a tumor about the size of a sloe, involving the two central incisors of the lower jaw. He was placed under chloroform, the tumor removed, the bone scraped and the surrounding tissues cauterized. He did well at first, but after some six weeks the growth had returned larger. The dog was anæsthetized and operated. The two lower canines were the outside limits of the operation site and all intervening incisor teeth were extracted, the tissues from the mucous membrane to the bone being cut through and stripped off in a triangular direction, taking the canine teeth as the base. A section of bone was then excised with bone forceps, care being taken not to reach the posterior margin of the body, thus avoiding separation of the rami. The wound was well washed with warm solution of chinosol and plugged with boric acid. After ten days recovery was complete. So far the growth has not returned.—*(Veterinary Journal, April.)*

INFECTIVE SARCOMA OF THE VAGINA AND RENAL CALCULI IN A BITCH [*Prof. G. H. Wooldridge, F. R. C. V. S.*].—The record of an interesting case of a valuable bitch which after several parturitions presented peculiar symptoms towards her genital organs. A tumor was detected in the vagina, rough and apparently granulating on its surface. This was removed and on examination proved to be a large-celled sarcoma. The dog ultimately died, and on post-mortem a considerable number of calculi were found in each renal pelvis, in part mostly very small, but a large one was in each kidney, very irregular in outline and measuring in the greatest length about half an inch and quarter of an inch in the greatest breadth. There was also a small tumor of similar nature to that removed, inside the roof of the vulva, and about the size of a pea. No others could be found in any part of the body.—*(Veterinary Journal, April.)*

BE of service to your brother practitioner: Tell him what he misses by not reading the REVIEW.

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

A CASE OF TRUE DISLOCATION OF THE PATELLA [*Paul Haan*].—Ten-year-old horse was brought lame on three legs and moving by jumps only upon the sound leg. The extremity of the left side was carried much flexed towards the abdomen, and the toe, instead of resting on the ground, as in cases of pseudo-luxation of the patella, was raised from the ground some 50 centimetres. The stifle was evidently the seat of the trouble. It was painful to the touch, and presented a thick, big cord, very hard, and extending on the thigh towards the point of the rump. It was the posterior portion of the long vastus in the condition of physiological tetanus. The stifle was swollen, painful and deformed, with the patella completely dislocated outwards, held in position by the inferior tendon of the long vastus, which is inserted upon the external patellar ligament. On the inside of the joint there was a swelling, which seemed to indicate that there was a rupture of the small femoro-patellar ligament. There was no doubt as to the diagnosis—complete and outwards dislocation of the patella. The reduction was performed by pulling the leg slowly and progressively forward with a rope secured on the cannon and firm and steady pressure inwards applied upon the patella. After a few seconds a loud cracking noise was heard: the patella had returned to its place. A stiff blister around the stifle completed the treatment.—(*Revue Générale de Medécine Vétérinaire, February.*)

TUBERCULOSIS IN CATS [*P. Bergeon*].—Records of two cases, which add to the history of direct contamination through man. A common cat has been living with a janitor whose daughter had been suffering with tuberculosis for a long time and had died from it. The cat had often been seen swallowing the sputa of the sick girl. It was soon taken ill and died. At post-mortem the entire digestive apparatus was found diseased, the peritoneum, the liver, the intestines and in the thorax, the lungs and the pleura were also the seat of tuberculous lesions. Another cat belonged to a man whose daughter had tuberculosis, which killed her after sometime. The cat had always been with the sick girl, drinking the milk that she would leave after her meal and eating the pieces of meat that she had only chewed and spit out. The cat soon manifested disease and

died. The autopsy revealed tuberculous pleurisy with lesions in the lungs and also in the liver. It seems very evident that both animals had been infected by contact and living with these tuberculous people.—*(Revue Vétérinaire.)*

SLOUGHING OF THE HOOF AFTER FIRING IN A NEUROTOMIZED HORSE [*M. Parent*].—Sloughing of the hoof in neurotomized horses is accompanied with serious manifestations on the podophillous tissue. Nothing of this kind has occurred in this case. The horse was eight years old and did cabbing work for a month. As he had large exostoses on the fore fetlocks, and, although he did not go lame, deep firing points were applied on both legs and a coat of ointment of biniodide of mercury put over it. Ten days later, without any inflammatory manifestations, the hoof of the right foot was found cast off in the bedding. There was no trace of exudation or of suppuration on the podophillous or keraphillous tissues. The only cause that could be found was that the animal had sustained median neurotomy, as he carried a linear cicatrix, at the point of selection for that operation.—*(Revue Vétérinaire.)*

TRAUMATIC RECTAL FISTULÆ [*Mr. Esclauze*].—This is the record of two cases of injuries due to the use of the large syringe so often employed in some large establishments. In the first an animal suffering with influenza received in his treatment rectal injections. The animal was doing well when, without any cause, the temperature went up, and then appeared three days after a slight hæmorrhage per rectum with scarcity of fæcal matter. There was an injury of the rectum which, notwithstanding treatment, proved fatal in a short time. In the second case, the animal, treated for colic, showed after a few days a swelling on the perineum. A lacerated wound of the rectum was discovered and a counter-opening made at the ischial arch to allow the discharge from a large ischio-rectal pouch to escape. Notwithstanding most careful attention, the cavity did not fill with granulations, and a free incision was decided upon. To avoid possible and probable hæmorrhage, the ecraseur was resorted to, taking in the chain all the tissues between the incision, the fistula and the rectum, involving the sphincter ani with it. This free cutting exposed the entire cavity of the purulent collection and transformed it into a large open wound, which, treated antiseptically, was healed in a very short time.—*(Bulletin Soc. Centrale, February.)*

TREATMENT OF STOMACHAL INDIGESTION OF SOLIPEDS [*Prof. Cadéac*].—Curative treatment: First indication: over-

come the pain; that is, quiet the colics. Most of the agents which are likely to do it have been given with another object, that of arresting the fermenting faculty of the microbes of the stomach. Ether, chloroform, chloral, opium, morphine, are the principal among those drugs. The antifermenting properties are not very important, their analgesic action, or, at least, quieting effects, are often very great: they prevent the rough and sudden struggles, the dangerous movements, the severe bruises to the stomach and its possible rupture. All these effects are important and cannot be ignored. Second indication: stimulate the secretions and the contractions of the stomach. These are obtained with pilocarpine, which stimulates the secretions and the contractions of the organ; it softens the contents of the stomach and facilitates their expulsion; eserine, which also increases the energy and the frequency of the gastro-intestinal peristalsis; its action must follow or be associated with that of pilocarpine; it must never precede it. Veratrine increases the duration of the peristaltic contractions and assists the action of the pilocarpine. The third indication is to prevent or treat the troubles that may follow indigestion. Repletion of the stomach may be the starting point of complications towards the heart, the lungs or the rachidian bulb. Bleeding is a safety valve that may be resorted to. If mustard is not dangerous, it is often useless. Mixed refrigeration has been recommended and done good. Cold rectal injections are beneficial. Walking exercise is good, but animals must not be forced to walk, as all exaggerated motion is a cause of aggravation. Diluted chlorydric acid assists also. The introduction of the œsophageal probang in the stomach is of no advantage. —*(Journal of Zoötechnie, March.)*

Spontaneous Rupture of the Aortic Trunk in a Steer [*Mr. Piot-Bey*].—A working steer, aged 14 years, had always been in good health and worked to the last day, when he died suddenly. Post-mortem: Nothing in the abdomen; all the organs are healthy. In the thorax: pericardium enormously distended with a clot of blood. This clot extends to the auricles alongside the aortic trunk as far as its bifurcation. In opening the aorta a solution of continuity is exposed, measuring about three centimetres and running in a slightly oblique direction downwards and backwards. The general aspect of the heart and that of the large arterial trunks, as well as the aorta, seem to be otherwise in perfect condition. There is no mark of atheromatous degeneration nor of aneurisms. This

case is probably the first one on record among large ruminants; in horses a few similar ones have been published.—*(Record de Medécine Vétérinaire, March.)*

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

CLINICAL NOTES [*Dr. Angelo de Pascale*].—*Enchondroma of the Testicle in a Horse.*—At the age of three years this stallion was brought to the author to be castrated. On exploration the left testicle was found much larger than normal, very hard and bosselated on its outside. The operation was performed and the animal placed in a box stall. He died on the ninth day from causes not connected with the operation. The examination of the testicle made at the laboratory of the School of Pisa proved it to have undergone structural changes and was enchondromatous. *Actinomycosis on the Stump of a Spermatic Cord.*—A calf after castration presented on the left side a tumor as big as an egg, similar to its shape, and was constituted of compact tissue, in the centre of which was a purulent collection. Microscopic examination revealed the neoplasm to be an actinomycotic tumor. *Actinomycotic Abscess in the Mesentery of a Cow* [*Prof. Garibaldo Lisi*].—At the post-mortem of an old cow an abscess was found in the mesentery, forming a tumor as big as an apple and containing pus which was creamy and with some small granulations similar to the tuffs of actinomycosis. The walls of the abscess were quite thick and had on the internal surface similar little granulations. Some of the pus was inoculated to three guinea-pigs. In examining the lesions of the dead and those from the cow the structure of actinomycosis was clearly made out.—*(Il Nuovo Ercolani, January.)*

SAND COLICS IN A MULE [*Dr. Guido Marietti*].—A six-year-old mule seems out of sorts, refuses all food, liquid or solid. Gastric indigestion is suspected. Purgatives are prescribed, but fail in their effects. Rectal examination reveals the intestine full, hard, and pulled downwards. Efforts to raise it by pressure upon the lower part of the abdomen give rise to great pain. Diagnosis changed to that of intestinal obstruction, possibly due to sand. An appropriate treatment was prescribed, but after five days the animal died with peritonitis of a very acute form. At the autopsy the abdomen was found to contain

much fluid; there were several hæmorrhagic spots throughout the length of the intestines, and in the portion situated between the sus-sternal and the pelvic curvature a large quantity of sand was found, making a mass weighing five kilograms.—*(Giornale della R. Soc. Veterinaria, January.)*

FISTULA AND NECROSIS OF RIBS DUE TO A FOREIGN BODY [*Dr. Domenico Bernardini, Adjunct*].—This is the very interesting record of a long and tedious case which was treated at the clinic of the Milan School. A horse of American breed (?) while in harness ran one night against a piece of iron drawn in a truck going in a different direction and which his driver had not seen on account of the darkness. The result was a deep wound on the right side of the chest near the point of the shoulder, from which a small quantity of blood was oozing. This wound, however, was very deep, and allowed the introduction of the arm in its whole length and yet the hand could not reach the bottom of it. It ran between the chest and the fore leg. In exploring it, the lacerated muscles were felt way back as far as the elbow and some still adherent to the ribs. It being night, and the hæmorrhage not alarming, the wound was dressed antiseptically and well packed for the time. The next day the animal was thrown and an incision was made 20 centimetres from the elbow alongside the vertical direction of the thorax, the lacerated tissues were removed, and all the loose fragments of fractured ribs taken off. There remained a wound measuring 80 centimetres, which, after being made smooth, was minutely disinfected and closed. Recovery went on with no great trouble, and in 21 days the animal was discharged comparatively well. There was, however, a small fistulous tract, which was not healed five months after, notwithstanding many forms of treatment, and the horse was again brought to the author. The animal was cast again, the old cicatrix cut down, the fistulous tract followed to its end, the new wound well and thoroughly cleaned and allowed to close by second intention. After a month all cicatrization was complete and the fistula apparently definitely closed. But after a few weeks it broke out again, and it was only then that by probing the sensation of the presence of a foreign body was obtained. The fistula was again freely opened, and at last, implanted into the anterior border of the seventh rib, a sharp piece of iron, broken off from the one that had caused the original wound, was extracted. Finally the case did well and was cured.—*(Clinica Veterinaria, January.)*

COMMINUTED FRACTURE OF THE WING OF THE ATLAS [*Dr. Pierre Fossati*].—A mare, to be made stand still, receives from the hostler a blow with a stool on the top of the neck, and, as a consequence, presents on the left side, over the transverse process of the atlas, a bruised wound with a swelling extending along the parotid and over the masseter region. The bruise was treated for two days with tepid antiseptic fomentations and bandage. When this was taken off on the third day, there was a discharge of red color, mixed with pus. Digital exploration revealed the condition of fracture of the wing of the bone. An incision was made over the swelling, and a number of small pieces of bone removed. The wound cicatrized with very abundant suppuration. The animal, however, never showed any great trouble about her injury, and ate well all the time. The dressing of the wound was made with naphtaline and later with salicylic acid.—(*Clinica Veterinaria, February.*)

COLORADO HORSES' EYES.—Dr. Mark White, of Denver, Col., writes: "I find that the native Colorado horse is practically free from diseases of the eye, and I have not met with a single case of periodic ophthalmia in a Colorado-born animal since I came here. The only disease of the eye that is common here is an excessive deposit of the nigra pigment bodies, due to the intense sunlight, which stimulates the secretion of this material. In some instances it is so pronounced as to partially or wholly occlude the pupil, causing horses to shy badly. I believe that fully 75 per cent. of the horses are thus affected, and there is no effective treatment for it. Keeping the patient in a darkened stall will cause absorption of some of the pigment."

E. E. SMATHERS, who was sued by the Memphis Trotting Association to recover the Gold Cup won by "Major Delmar" in 1904, from the trotting queen "Lou Dillon," the latter owned by C. K. G. Billings, who charged the Smathers party with having caused the mare to be drugged to destroy her chances of winning, has issued a challenge with the famous cup as the stake. The event, according to Mr. Smathers, will be for mules, and will consist of but a single heat. The driver of the winner will be given permanent possession of the valuable trophy, and the offer will remain open until accepted. There is but one stipulation, and that is that "all members of the Caucasian race are ineligible to drive their mules or mules owned by others, with the exception of C. K. G. Billings."

ARMY VETERINARY DEPARTMENT.

DOES MALLEIN CURE GLANDERS?

By FRED B. GAGE, M. D. V., Veterinarian Artillery Corps, U. S. Army, Fort Myer, Virginia.

While making a complete test of two hundred and forty animals of the 3d Battalion Field Artillery upon its return from Chickamauga Park in the fall of 1906, glanders having occurred among some of the animals while in camp, I found one animal that reacted to the mallein test.

This animal had recently arrived from the West, was 4½ years old, condition good, with no signs of any disease. He did not accompany the command to Chickamauga Park as he was considered too young to stand the journey. Oct. 5th, 1 cc. of Government mallein was injected, the maximum temperature before the injection was 100° F. This resulted in a typical reaction. The maximum temperature reached on the following day was 106⅕, with a large circumscribed tumor measuring about 8 inches in diameter and the animal showed all the characteristic symptoms.

The animal was at once isolated in a stable about one-eighth mile from the Battery stable and held as a suspicious case of glanders.

On Oct. 18, a sample of blood was sent to the Bureau of Animal Industry and the agglutination test made of the same, which gave a reaction of 1–800; this indicates that this animal was suffering from incipient glanders.

Nov. 8 the mallein was again injected, the maximum temperature before the injection being 101 and the maximum temperature reached after injection being 104½, with the characteristic swelling at site of injection, decided illness, etc., and was considered a typical reaction.

A sample of blood sent to the Bureau of Animal Industry Nov. 10, gave a reaction to the agglutination test 1–500. As the animal still showed no symptoms of glanders and was in such good condition it was decided to keep him and apply the mallein test every four or five weeks to see if it really possessed any of the curative properties claimed for it.

Dec. 11, the mallein again injected with the maximum temperature before injection 99½. The maximum temperature reached after injection was 104. The tumor at the site of in-

jection was not as large and painful as it had been on the previous test and entirely disappeared in about three days, still it was considered a reaction.

Jan. 8, a sample of the blood was again sent to the Bureau of Animal Industry and the report was made that "the sedimentation was very imperfect and could in no sense be considered a positive reaction."

Jan. 23, mallein again injected with a maximum temperature of 100 before injection. Maximum temperature reached after injection 101°, with no swelling at site of injection, and no other symptoms, so that it was considered "no reaction."

Feb. 25, mallein again applied, no reaction.

April 16, mallein again applied, maximum temperature at time of injection 100, maximum temperature after injection 102, but no swelling at site of injection. This was not considered a reaction.

During this whole period this animal had showed no symptoms of this disease. About one month after being isolated a peculiar lameness developed in one hind limb that resembled rheumatism, and as this condition grew worse I recommended that he be destroyed to prevent further suffering.

April 18 this animal was destroyed and a post-mortem examination performed by Dr. John R. Mohler, Chief of the Pathological Laboratory, Bureau of Animal Industry, and myself. The autopsy revealed pulmonary glanders, the lungs being studded with nodules from the size of a pea to a hazel nut. These nodules were in all stages of development, some being of long standing and some recent. They were not encysted or encapsulated, and were in a condition to suppurate and break down, and, communicating with a bronchus, be carried the whole length of the respiratory tract, and finally locate in the nostrils, and there pour out their discharge so deadly to the spread of this disease. The other organs were normal, even the sub-maxillary glands. As it was a question whether the contents of these nodules were virulent and capable of transmitting the disease, a section of the lungs containing many nodules was taken by Dr. Mohler to the Bureau of Animal Industry to determine the presence or absence of the glanders bacillus by injecting the contents of a nodule into guinea-pigs.

The guinea-pigs being chloroformed four days after injection, the animals showed the characteristic lesions on post-mortem. His report on the same follows:

APRIL 22, 1907.

Dr. Frederick Gage, Fort Myer, Va.

SIR: Referring to the specimens from the lungs of a horse destroyed at Fort Myer, Va., on the 18th inst., you are advised that the inoculation experiments conducted with guinea-pigs confirmed the diagnosis of glanders. In the three guinea-pigs, each injected with an emulsion of a nodule in different stages of development, a severe orchitis developed, and when chloroformed this morning they all showed an ulceration of the tunica vaginalis, and numerous punctiform areas of necrosis in the spleen, with several circumscribed hæmorrhagic infarcts.

Cover glasses prepared from the necrotic tissue of the testicle showed the *Bacillus malleus* in large numbers. Very respectfully,

(Signed) J. R. MOHLER,
Chief, Pathological Division.

In my opinion this proves that mallein cannot be relied upon as a curative agent for glanders. Had this animal not developed a lameness which was incurable and caused suffering he would have been returned to the original stable and to duty and recorded as a cured case of glanders. Sooner or later this animal would have been the means of spreading this disease. In this case, although an incipient one, and given the best of food and care, mallein failed to encyst or encapsulate the nodules and render them harmless, as it has been claimed by some to do, and I firmly believe that sooner or later these cases that are pronounced cured will be the cause of spreading the disease; and that if a test was made by killing one of these, that the nodules would be found to exist, not encysted, but ready to suppurate and break down at any time, and that the contents of these nodules are virulent and can be proven so by injecting the same into the guinea-pig.

It is to be regretted that the animal treated at the Presideo of Monterey by Dr. Corcoran, of the Artillery Corps, that showed clinical symptoms of this disease, and was pronounced cured, as reported in a recent number of the AMERICAN VETERINARY REVIEW, could not have been destroyed and a careful examination of the same made. In my opinion, although it would cause a loss to the Government of one animal, I feel that it would be the only safe way to prove that this animal is really cured.

Dr. J. G. Rutherford, Veterinary Director-General of Canada, at the annual meeting of the American Veterinary Medical Association, held at New Haven, last summer, read an interesting paper on this subject. He claims that they have spent $500,000 eradicating this disease from Canada. He reports

that these so-called cured cases, or "ceased reactors," as he calls them, are the most dangerous of any, and are the source of spreading a great deal of this disease.

Col. F. Smith, of the Veterinary Department of the British Army, in his able work on "Veterinary Hygiene," speaks of mallein as follows: "Mallein is a simple chemical agent in skilled hands, but a very dangerous substance in the unskilled —dangerous not because it threatens life, but because its effects may be wrongly interpreted and lead to disaster. The questions of judgment and experience are inseparable from mallein operations." Again he speaks of it as follows: "By repeated injections of mallein, a tolerance is established and finally no reaction obtained in an animal which has previously given an undoubted glanders reaction. This failure to react may either mean that the case is cured or that a tolerance is obtained, though the disease is still active in the lung."

On the morning of April 14th an acute case of glanders was discovered in the 4th Battery, Field Artillery. This animal, one of those tested last October and gave no reaction, had a temperature of 103°, swollen sub-maxillary glands, and discharge from the nostrils. He was at once isolated and the mallein test applied, which failed to give any reaction. This does not reflect on mallein as a diagnostic agent, as it very often fails to react in acute or old-standing cases where the system is overloaded with the bacilli, but shows that too much dependence must not be put upon mallein as a diagnostic test when other symptoms are well marked.

The above animal was condemned and destroyed. The physical examination and post-mortem confirmed the diagnosis, the nasal septum in both nostrils being overrun with ulcers.

It would appear that if all animals in the Army are subjected to the mallein test every three months, that a certain tolerance to this agent is possible to be obtained that is going to be very dangerous, as it makes the mallein test very uncertain and unsatisfactory in a suspicious case of glanders that may appear at any time, and that this subject is worthy of more careful study. Certainly from my experience with mallein, the curative as well as the immunizing properties of the agent are yet to be proven.

* * *

MALLEIN NOTES.

The mallein treatment was applied to 219 artillery horses at Fort Snelling, Minn., on March 18. One typical reaction was

obtained, with no clinical symptoms. This is a good record for Minnesota.

At posts where no veterinarian is assigned, civilian veterinarians were recently invited to submit bids for administering mallein to the horses four times a year. It is passing strange that, while the profession as a whole has virtually discarded the idea of employing mallein as a curative agent, the Army should adopt it. The case report by Dr. Gage, of Fort Myer, Va., in this number of the REVIEW, is a sufficient commentary upon its value.

* * *

ARMY PERSONALS.

Dr. Alex Plummer, of Fort Riley, Kansas, has made several professional trips to St. Louis to select horses for Army service. Dr. Plummer is testing the value of antistreptococcic serum by administering immunizing doses just before shipment, and so far the effects are apparently most favorable.

THE statement is made by good Colorado authority, that the empirics of that state spent about $700 in an attempt to repeal the Colorado veterinary law, but the profession defeated their bill.

IMPORTANT STALLION LAW IN MINNESOTA.—Minnesota veterinarians secured from the last legislature a law providing for registration, verification of pedigrees and veterinary examination of all stallions standing for public service in the state. It is estimated that this, in addition to being a very important movement for the horse breeding interests of the state, will bring in for the veterinarians about $10,000 or $12,000 the first year. This law provides that all stallions shall be submitted to examination by a duly licensed and qualified veterinarian; this to be repeated every four years until the horse is ten years of age. Horses are barred for infectious or hereditary disease or unsoundness, the following diseases being especially listed: cataract, amaurosis, laryngeal hemiplegia, chorea in various forms, bone spavin, ringbone, sidebone, glanders, farcy, maladie du coit, urethral gleet, mange, melanosis, and curb or curby hock. The management of this work rests in a stallion registration board, in which the profession is recognized. It consists of three members, viz.: the President of the Horse Breeders Association, Professor of Animal Husbandry in the College of Agriculture and the Veterinarian of the University Experiment Station.

SURGICAL ITEMS.

By Drs. L. A. and Edward Merillat, Chicago, Ill.

DISLOCATIONS OF THE PATELLA IN THE HORSE.

Dislocations of the patella in the horse occur in three distinct forms, each one differing from the other in every respect except in the direction of the displacement, which is always outward.

The *first* and the most common form is the so-called *pseudo-luxation* or *stifle cramp*, that is manifested by trailing the foot along the floor and by total inability to flex any of the articulations of the affected leg. In olden times and even to-day this disorder of locomotion has been regarded and treated as a real luxation, and any attempt to contradict this well-grounded impression has been generally met with stiff counter-arguments until the delusion was banished by a more common-sense view of the condition. Only recently, a plain statement of the facts connected with this common abnormality almost precipitated a panic in one of the first veterinary associations in this country. Old practitioners revolted against any attempt to discountenance their old interpretation of the disease. They were manifestly slow to give up a theory or, better still, a delusion which has permitted them to cure disarticulated diarthroses with the crack of a whip, and that, too, without leaving behind any of the inevitable sequelæ of luxations. Try to-day to convince old practitioners that traumatic dislocations of the patella are rather rare in horses, and note what a beautiful debate will follow.

The stifle cramp scarcely deserves the name of luxation even with the "pseudo" qualification, because it is more of a muscular than an articular defect. The patella is barely displaced, its binding apparatus is uninjured, and the surrounding synovials sustain no harm. The compound word "pseudo-luxation" may, however, be retained, because the patella is somewhat dislodged from its normal position; but the phrase "stifle cramp" is much more lucid, because it selects the real state of affairs, and above all dispels the delusion anent the dislocation. Hughes, for years, has insisted upon calling it "fixation of the patella"—an appellation which in our opinion is highly appropriate, if the word "patella" is insisted upon in the nomen-

clature. With laymen a horse so affected is "stifled" or "his stifle is out," and to them the latter phrase seems specially appropriate after they have seen the self-deceived veterinarian dexterously snap the supposed luxation into place.

The *cause*, although sometimes obscure, is generally traceable to some slight change in the patient's usual habits. Usually it is a change that causes the animal to remain standing longer than usual. A hard-worked horse, carrying more than an ordinary amount of flesh, previously accustomed to a wide stall or loose box, that remains standing all night (or continually for days) instead of resting, as usual, may be found with a stifle cramp in the morning. A too narrow stall, a strange environment, a wretched litter, or some trivial inherent discomfort, are so many conditions which may prevent a work horse from taking its much needed rest in decumbency. The pregnant mare confined in a single stall is often a victim. Perhaps the continued strain to the large muscles of the thigh, from holding the weight of the body in the standing posture all night, has ended in a cramp that manifests itself by the symptoms of this peculiar disease. Whatever may be the actual cause, or whatever may be the manner by which this suspected cause produces the cramp, it is nevertheless true that the patient, when found in the morning, usually shows no evidence of having laid down during the night. The litter is not disturbed, and there is no manure stain on the hocks to indicate that the patient had been recumbent. The disease never occurs from a sudden injury while at work; it never supervenes a restful night in the recumbent position; it is never seen in a horse immediately after rising; and, finally, it is never seen in weak, lean, or emaciated horses. The susceptible subject is the horse in good general health, in fair although not necessarily excessive flesh, and previously accustomed to regular exercise.

The *symptoms* are well known to all experienced practitioners. When an attempt is made to back the horse from the stall it is found to be mysteriously disabled, often refusing to budge an inch in the backward direction. When forced to take one backward step one foot seems fixed to the floor, and when pushed backward by sheer force the foot of the affected leg trails the litter out of the stall. The leg is rigid; not a joint flexes. If moved forward, the leg, still rigid, drags along behind the other with the toe on the floor. Sometimes these movements suddenly relieve the symptoms and the horse walks a few steps apparently well, but only to be seized with another cramp

after a few moments' repose. Usually, however, the condition is more tenacious, and will not yield to these ordinary attempts to walk, and if not relieved will persist from four to thirty-six hours and then disappear spontaneously. In some instances, after the cramp is relieved by manual manipulations of the leg or by the crack of a whip over the buttocks, it will recur in a few moments; even as the patient is walking the leg may be suddenly seized with a cramp that locks its joints as completely as before. But after the cramp that has dominated for several hours has been relieved once or twice by the whip, it becomes less obstinate; that is to say, the recurrent seizures are much more easy to relieve than the original one. They may come and go a number of times, each one more feeble than the preceding, and then under the influence of exercise, disappear entirely. Manipulations of the stifle, especially a number of good firm thrusts of both hands against the patella, will produce a snapping thud followed by complete relaxation of the rigid leg and immediate reëstablishment of normal locomotion—a transformation as complete as it is amazing to the astonished bystander. To the snapping sound, perceived as the rigidity of the leg vanishes, may be attributed the well-established impression that the patella had been dislodged, and that the marvelous cure depended upon its reposition.

The pathology of this remarkable phenomenon is as obscure as that of cramps in general, and even if every one admitted that the disease is but a muscular cramp, there would still be much to explain as to the exact cause, the exact initial lesion, if any exists, the exact location of the contracture, and the exact manner by which the latter so effectually locks the articulations. Williams' experiment of bolting the patella to the femur shows that fixation of the patella alone is not followed by the symptoms manifested in so-called stifle cramp or pseudo-luxation of the patella, and the case reported by Dr. Paul Haan and our own cases described below, all of which were real outward dislocations of the patella, show that actual luxations present an entirely different clinical picture than that of trailing the leg from inability to flex the joints.

Although the theory of luxation is not seriously entertained by any one who has given the matter an intelligent thought, there are few observers who would deny that the relations of the three bones comprising the stifle are not disturbed. The femero-tibial angle is increased and the patella *is* fixed against the external lip of the trochlea. The former evidence is plainly

observed on inspection of the region, and the latter (the displaced patella) is confirmed by the thud and its unmistakable inward movement that is perceived as the rigidity of the leg vanishes from manipulations or from a sudden start. By exclusion, and by the transitory character of the condition, these phenomena may reasonably be attributed to cramp located in the muscles attached to or closely related to the patella. That the cramp is reflected largely upon the patella is shown in its instantaneous cessation when the patella is successfully snapped inward by pressure from without, or by a sudden movement.

It would be interesting, of course, to isolate one muscle to the exclusion of all others as the seat of the contracture, but the most reasonable hypothesis is, that whole groups are implicated instead of a single muscle. The complex muscular system that enables a horse to support the hindquarters in spite of the series of angles in which the bony column is arranged and which as a whole is more or less closely related to the patella, is undoubtedly the seat of the disorder. If, by a seizure of tonic spasm, the muscles occupying the space behind the femero-tibial angle, fix the stifle joint, the hock will also become automatically fixed, because these two joints can only flex simultaneously. The same contracture will also more or less effectually fix the hip and thus complete the rigidity of the whole leg, which, in fact, is the real state of affairs that exists in the so-called pseudo luxation of the patella. Instead of being a mere fixation or displacement of a single bone, it is in reality a locking up of the whole leg. *The slight dislodgment of the patella from its position in the depths of the trochlea is but an incident of the rigid leg, and not a cause*, for when the patella is actually wrenched from its normal position by force and deposited outside of the external lip of the trochlea, the leg presents an entirely different physiognomy; all of the articulations are flexed instead of extended.

In a word, pseudo-luxation of the patella is a *tonic spasm* of one or more muscles that locks the stifle, hock and hip, and which is so reflected upon the patella as to instantaneously relax when this bone is manipulated.

Treatment.—The certain method of effectually coping with the stifle cramp is to draw the leg slightly forward, lift the foot from the floor as if trying to flex the hock, and then execute a number of forcible thrusts against the patella with the other hand until a snapping thud is perceived. At that moment the locked articulations relax and normal locomotion at once

returns; the horse will be noticed to walk as if nothing had happened. Generally, the cramp will return in a few moments, unless a vigorous exercise is immediately insisted upon. A good brisk trot of two to three hundred yards is often sufficient to prevent a recurrence, but if the seizures still return, a thorough warming up will be necessary. When exercise for any reason is impossible, a brisk rubbing of the stifle and belly with oil of turpentine sufficient to cause the animal to fight the irritation produced will answer the purpose.

The "whip method," which consists of giving the affected animal a good sharp rap over the buttocks is, however, quite as effectual, especially in a spirited animal that will respond sharply to such manœuvres. In this method the patient should be taken into the open to facilitate free movement. The attendant holds the lead strap a safe distance in front of the animal, which is then submitted to an unexpected lash with the whip. The sudden start is usually accompanied with an audible thud as the leg relaxes and locomotion returns. But when this fails completely, despite repeated attempts, recourse is had to the former method, which seldom ever fails. In bilateral cases, it sometimes happens that the cramp recurs in one leg while attempts are being made to relieve the other. In this event, the situation is, for a time, rather discouraging, but if both legs are successively relieved a number of times, the intervals between the seizures will increase in length sufficiently to finally bring both into a normal state at the same time, and hence render locomotion possible. No time must then be lost in giving the patient a good lively trot of no less than half an hour.

Blistering the stifle with cantharides, complicated surgical operations (desmotomy of the patellar ligaments), tying of the foot of the affected leg forward by means of ropes, and the application of the old-fashioned stifle shoe, are all unnecessary expedients. These radical measures have emanated from the prevailing misconception of the harmlessness of the condition.

Finally, stifle cramp, no matter how rigid or how obstinate, will relax spontaneously. Generally, it will dominate for twelve hours, but sometimes thirty-six hours may elapse before the relief comes. There are isolated cases reported here and there in which the cramp continued longer, but these are exceptional. Treatment by manipulating the leg or by the crack of the whip is, however, preferable to that of waiting for the spontaneous relief. There is some credit always given to the performer of

this seemingly marvellous, bloodless operation, and the patient is saved some hours of discomfort if not of pain.

THE SECOND FORM.

A second form of luxation of the patella in solipeds is seen in colts. This one is of congenital origin, and is due to a *pronounced relaxation* of the apparatus that holds the patella in its proper position in the trochlea of the femur, and which in turn is undoubtedly due to mal-nutrition of maternal origin. Very often, as the affected subject develops under improved hygiene, the condition gradually improves, leaving no trace of its previous existence. But in some instances the subject grows to maturity with the defect still persisting and perpetuating a state of miserable decrepitude. The patella, in constantly slipping over the external lip of the trochlea, wears it flat, entirely destroying its physiognomy. Richards reports a case of a three-year-old, in which both the external and the internal lips were worn level with the shaft of the femur, by the constant flopping of the patella over them from the time of birth.

This disease, which is but a local manifestation of general systemic weakness, may be mistaken for stifle cramp, as colts, too, are susceptible to the latter. The differentiation is made by its constant recurrence, which is not the tendency of the stifle cramp.

It occurs in various degrees. The relaxation may be so complete as to allow the rickety patella to slip easily over the entire trochlea, or it may in other cases only allow it to slip over the smaller lip—the external one. In the latter event the stifle locks quite as completely as in stifle cramp of mature horses, and the symptoms of locomotion are not dissimilar. The local symptoms are, however, easily recognized from those of stifle cramp, as the patella of this emaciated subject is plainly felt, and can, with more or less facility, be picked up with the hand and replaced in the trochlea.

The *treatment* consists of good sanitation, a balanced ration of nourishing feeds for the mother and the young, invigorating out-of-door exercise for both, and the application of mild stimulating liniments and massage to the affected stifles. It is also important to replace the dislodged bone as often as possible, in hopes that eventually it will be retained. When these fail, *desmotomy of the internal straight ligament of the patella* will materially help matters. But this operation is only effectual when the relaxation is not too pronounced. If the patella slips over the whole trochlea, internal lip and all, no benefit will be

derived; but, on the other hand, if the patella only locks over the external lip, the division of the ligament will permanently prevent the locking, and thus facilitate locomotion, while the colts improve toward perfect recovery under the hygienic treatment above recommended. *This operation has evidently been grossly misjudged as regards its intent for habitual luxations of the young, as well as having been misapplied to diseases for which it was never intended.*

We have had occasion to make use of the operation three times, each time to good advantage. Shumacher, formerly of Milwaukee, also performed the operation three times with successful results. These subjects, six in all, were not suffering from the transient stifle cramp of the "whip" variety, but were habitually affected with a marked relaxation of the ligamentous apparatus of the patella, that allowed the bone to glide over the external lip. When replaced into the trochlea, the subject walked well enough, but sooner or later the bone gradually found its way out again, and the same inability to flex the stifle immediately supervened. Unfortunately, the data on these interesting cases has never been accurately tabulated, and can only be reported in a general way.

THE THIRD FORM.

The third form is the true, traumatic luxation of the patella, with all of the complications that accompany the tearing asunder of normal diarthroses. These cases, although exceptionally rare, do occur, and that with sufficient frequency to command attention. The real luxation of the patella in mature solipeds differs so materially from the above-mentioned varieties in regard to their symptomatology and especially their terminations, as to set to route for all time the popular fallacy that the stifle cramp is a true luxation in the surgical sense of the term.

When the patella of a normal stifle is accidentally wrenched from its normal position and deposited over the external lip of the trochlea, an entirely different chain of symptoms is presented than in stifle cramp, and furthermore the results are disastrous; it does not terminate in the instantaneous cure, but on the contrary leaves an acute lameness that becomes chronic, incurable, deforming. The subject, although not susceptible to recurrence of the accident, henceforth suffers from a chronic gonitis of no small magnitude.

The *symptoms* of this form are remarkable, in the face of what is ordinarily expected from observations on the pseudo-

luxations and the habitual congenital luxations. The diagnostician expects to see the foot "nailed" to the floor and all of the articulations locked in extension, and with the rigid leg trailing behind while walking, but instead he finds all of the joints flexed, the stifle hugging the abdomen, and most remarkable of all, the foot is held up as high as the level of the hock, and can not by any kind of traction be made to descend an iota lower.

We have encountered two such cases in work horses during the past eighteen years, and Haan, in the *Revue Générale de Medécine Vétérinaire*, Feb. 15th, reports a case in a cavalry horse.

Our first case occurred to a farm mare working on the Pullman Farm, Riverdale, Ill., during the summer of 1898. The mare, an exceptionally fine specimen of the grey Normans, although perfectly well when left for the night, was found totally disabled in the morning. The farm hands could not back her from the stall nor induce her to place the foot of the affected leg to the floor. It was my privilege to examine her a few hours later. A first glance on approaching her from behind gave the impression that she was suffering from some acute pain in the lower articulations or synovials—a fracture of the os pedis, a nail prick, or a puncture into the sesamoids perhaps. But a second more careful review of the attitude showed that the peculiar position of the leg was a strikingly unusual one. The foot, which remained stationary, never moving up or down as is always the case when it is lifted from severe pain, occupied a position opposite the hock of the sound leg. Its wall almost touched the internal surface of the opposite hock, and there it remained, moving neither laterally nor vertically.

Knowing now that the case was an unusual one, the mare was backed from the stall by sheer force of several men and whipped out into the open, where she could be submitted to a careful examination.

Viewed laterally, the stifle was seen to hug the flank, and to be flexed into the acutest angle possible, and the hock was flexed so as to bring the foot into the position already mentioned. On palpation, the external face of the stifle was found markedly tumefied and slightly painful to the touch. Within the swelling a rounded, hard object the size of a cocoanut could easily be felt. This was the dislodged patella. There could be no mistake. I was confronted with a true luxation of the patella, but was very reluctant to announce my decision, because

the symptoms presented were directly opposite to my previous conception of what they should have been. I had been taught that dislocation of the patella is always manifested by fixed, rigid and extended articulations, and with the foot "nailed" to the floor; and here was an unmistakable case presenting flexed articulations, with the foot elevated as high as the hock.

By way of effecting a reposition of the luxation, the mare was placed beside a wall to prevent her from moving too freely about, while the manipulations decided upon were carried out. A rope was looped around the pastern, and with the assistance of four strong men an attempt was made to straighten out the leg by forward traction, but this proved futile. Despite their combined strength, it was found impossible to bring the bony column out of its obstinate state of flexion by such traction. The foot could be pulled forward and upward until it touched the abdomen at the level of the ensiform cartilage, but it could not be drawn downward and forward far enough to extend the stifle sufficiently to allow the patella to surmount the external lip of the trochlea over which it was so firmly locked. After a number of unsuccessful attempts, which had shaken the confidence of my audience and even caused me to doubt the correctness of my diagnosis, an attempt was made to draw the leg backwards as far as possible. This effort caused intense pain, which was resented by a violent attempt to break away from her tormentors. In this "mix up" a veritable tug-of-war ensued; the assistants on the rope tugged frantically, as if to prevent the frenzied patient from running away, and in so doing accidentally *pulled the leg violently at a right angle from the body* as she wheeled around. At this moment a loud thud was plainly heard by everyone present. Some ventured that a cure had been effected, others thought the leg had been broken, whilst I, completely bewildered, remained non-committal until, a moment later, when our patient, trailing the rope still attached to the affected leg, walked almost sound, and unattended into the stable. The patella had snapped into the trochlea.

The mare never suffered a recurrence of the trouble, but remained lame and disabled for months, and was finally sold for breeding purposes. The stifle became the seat of a hard tumefaction, and the muscles of the thigh and hip atrophied, leaving this excellent mare a very poor excuse of her former self.

The second case was encountered during the winter of 1901. A horse working in a sewing machine wagon was found in the

morning, without apparent cause, with one foot lifted from the floor and the patella standing out prominently on the side of the trochlea. Profiting by the experience above related, the reposition was a matter of but a few moments. The leg, with the aid of a rope, was pulled firmly away from the body laterally by two strong men, and at the same time the patella was submitted to several good firm thrusts with the palms of both hands, until it snapped into position. Some weeks later this subject was sold as a cripple.

A third case is reported by M. Paul Haan, in the *Revue Générale de Medécine Vétérinaire* (Vol. IX., No. 100). This one, like the preceding ones, is a work horse, found upon examination to be totally disabled in one hind leg, all of the joints of which are flexed and the foot is carried rigidly some distance from the floor. The patella, thrown completely out of the trochlea externally, can be plainly felt on palpation. The region is painful and slightly œdematous. Reposition is effected by backward traction, but with some difficulty, and the patient remains lame for some weeks before returning to work.

SUMMARY.

1. True luxations of the patella of traumatic origin are rare, and when they do occur they are manifested by flexion of the articulations and inability to touch the floor with the foot of the affected leg.

2. True luxations of the patella of congenital origin are common in colts and other young animals, but these are due to flaccidity of the apparatus holding the patella to the trochlea.

3. Pseudo-luxations of the patella are in reality not luxations at all, but a spasm which, by locking the stifle automatically, locks the hock and hip in extension.

4. Pseudo-luxations exist in colts, and must not be mistaken for true congenital luxations.

5. Desmotomy of the internal patellar ligament is an effectual operation in the treatment of habitual luxations of congenital origin.

IT costs $7.40 per head per annum to feed the animals in New York Zoölogical Park.

THE Department of Animal Pathology of the Nebraska Experiment Station received an appropriation from the last Legislature of $1000 for investigating tuberculosis in hogs, and $1500 for investigating malarial fever in horses.

COLLEGE COMMENCEMENTS.

CHICAGO VETERINARY COLLEGE.

The twenty-third annual commencement exercises of this school were held in the College Auditorium on Friday afternoon, March 29th, at two o'clock. The large and commodious hall was filled to its utmost capacity, notwithstanding that many, owing to the early hour in the afternoon at which the exercises were held, were prevented by business engagements and otherwise from being present. The room was very handsomely decorated with flags, bunting, college emblems, pictures and flowers. The members of the Faculty occupying seats on the rostrum were: Drs. Joseph Hughes, A. H. Baker, E. L. Quitman, J. F. Ryan, E. L. Day, A. S. Alexander, L. A. Merillat, E. Merillatt, Jas. M. Wright, Jas. Robertson, Maxmilian Herzog, C. A. White, R. H. Phillips, P. H. O'Donnell. Dr. J. G. Rutherford, Veterinary Inspector-General of the Dominion of Canada, also occupied a seat on the rostrum. The proceedings, as is customary, were opened with an address by the President, Dr. Joseph Hughes, who detailed the history of the institution and its progress since its inception, and in a few well-chosen remarks complimented the graduating class on its attention and ability during the session just closed, which was one of the largest in the history of the school—344 having matriculated. He also paid a well-deserved compliment to the Faculty for their ability and teaching qualities, which had in no small measure contributed to the success of the present class. The roll-call of the graduating class, which is given below, as well as that of the honor class, next followed, after which the Dean of the Faculty, Dr. A. H. Baker, conferred on its members the degree of Doctor of Comparative Medicine (M. D. C.), and presented each with the diploma of the school.

Dr. Maxmilian Herzog, Professor of General Pathology and Bacteriology, distributed the medals and prizes. The doctor was exceedingly happy and felicitous in his remarks while engaged in the performance of his task.

The following received prizes:

Gold medal for highest general average, Dr. W. H. Dreher; gold medal for the best final examination in theory and practice, Dr. Wendell Smith; gold medal for the best final examination in anatomy, Dr. Wendell Smith; gold medal for the

best final examination in surgery, Dr. H. J. Schwartz; gold medal for the best final examination in cattle pathology, Dr. C. D. Williams; prize in dentistry, Dr. J. R. Shand; prizes in pathology and bacteriology respectively, Drs. W. H. Dreher and E. J. Watters; prize in materia medica, Dr. H. J. Schwartz; prize in parasitology, Dr. W. G. Kupper; prize in lameness and shoeing, Dr. Wendell Smith; prize in canine pathology; prize in physiology, Dr. A. B. Rogers; prize in chemistry, Dr. Otto C. Faulbaum; prize in meat and milk inspection, Dr. F. E. Williams.

The presentation of the class picture was made by Dr. John E. Klem, and its acceptance responded to on behalf of the Faculty by Dr. E. L. Quitman.

Interspersed with the musical program were addresses made by Dr. James M. Wright, State Veterinarian; Dr. L. A. Merillat and Dr. J. G. Rutherford.

Dr. Leo T. Donovan delivered the valedictory, and Dr. B. H. Edgington the class prophecy.

Dr. A. H. Baker brought the proceedings to a close by delivering the Doctorate.

The following is a list of the graduates and honor class:

Stanley W. Allen, Willow Lake, S. D.; F. W. B. Achen, Russell, Ill.; C. W. Anderson, Jewell Jnct., Ia.; Thos. E. Anderson, Lenox, Ia.

John P. Beck, Cavetown, Md.; Forrest C. Bowman, Maquoketa, Ia.; Robert A. Buchmann, St. Louis, Mo.; Chester P. Branigan, Glen Ellyn, Ill.; Roscoe C. Byrnes, Malcott, Ia.; John B. Byrnes, Baltimore, Md.; John H. Bakelaar, Passaic, N. J.; Lawrence C. Beaumont, Ames, Ia.; W. Leo Brailey, Amherst, O.; Frank T. Burnett, New York City, N. Y.

D. L. Cowgill, Columbus, Wis.; J. O. R. Campbell, Geneva, Ind.; John J. Cranwell, Waterbury, Conn.; G. Neal Chambers, David City, Neb.

Floyd N. Davidson, Summit City, Mich.; Oliver Perry Dickson, Indianola, Ill.; Augustin R. Dickel, Keyser, W. Va.; Rufus D. Denton, Carthage, Ill.; Wm. Henry Dreher, Oregon, Wis.; Daniel H. De Turck, Oley, Pa.; Leo T. Donovan, Waupun, Wis.

Arthur L. Edmunds, Franklin, N. H.; Bruce H. Edgington, Mt. Sterling, O.; Albert E. Evans, Chicago, Ill.

Otto C. Faulbaum, Belleville, Ill.; Wm. A. Fitzpatrick, Mt. Holly, N. J.; Wm. Austin Ferry, Put-In-Bay, O.

R. E. Gearhart, Ellsworth, Ia.; Geo. A. Gettelman, S. Ger-

mantown, Wis.; Chas. T. Graf, Harlan, Ia.; Sid Galt, Mt. Vernon, Texas; Wilbur J. Gooder, Des Moines, Ia.; Jas. Curran Glenn, Oxford Jn., Ia.

Harold Martin Halverson, Yankton, S. D.; Frederick Webster Hill, Chicago, Ill.; Wm. K. Howard, Tremont, Ill.; Chas. B. Hillenbrand, Sun Prairie, Wis.; Wm. C. Holtz, Chicago, Ill.; Robt. Jas. Hight, Vienna, Ill.; Bert W. Heath, Princeville, Ill.; John Huebschmann, Baltimore, Md.; J. Edmund Henderson, Toulon, Ill.; Eugene L. Hannon, Pittsfield, Mass.; Chas. Head, Regina, Sask., Canada.

Irvine L. James, Steele, N. D.; Andrew J. Kyle, Sioux City, Ia.; John E. Klem, St. Louis, Mo.; Chas. H. Koon, Maquoketa, Ia.; Frank Koubenec, Chicago, Ill.; Edward I. Keller, Windsor, Ill.; Harry Koll, Walnut, Ia.; Alfred D. Kuhl, Harlan, Ia.; Alphons Miles Kuhl, Harlan, Ia.; Walter P. Kellenbarger, Merna, Neb.; W. G. Kupper, Walcott, Ia.; Volney S. Kellam, Seattle, Wash.; Francis J. Kennedy, Dubuque, Ia.

Robt. Harry Leadlay, Cookstown, Ont.; Ernest A. Lang, So. St. Paul, Minn.; Jas. P. Lang, Woodstock, Ill.; Frank W. Lupfer, La Fayette, Ill.

Eugene E. Main, Carthage, Ill.; Jules Fernando Morel, Mons, Belgium; Alexr. M. Miller, St. Louis, Mo.; J. T. McGilvray, Valley Springs, S. D.; Saml. B. Moon, Rock Rapids. Ia.; T. Irving Miller, Decatur, Ill.; J. D. McFarland, Athens, Ill.; Danl. G. Marks, Chicago, Ill.; Paul A. Mollan, Chicago, Ill.

John R. Nelson, Lake Park, Minn.

Edwin Orton Odell, Central City, Neb.

Edward T. Playne, Chicago, Ill.; Benjamin H. Priest, Newark, O.; Warden W. Parkinson, Savanna, Ill.; Edwin Henry Pease, Fargo, N. D.; Roy Alexr. Purdy, N. Manchester, Ind.; J. Edwin Pyle, Toulon, Ill.

Jay Wilson Reeder, Norwalk, O.; Theo. J. Roesch, Menomonee Falls, Wis.; Arthur B. Rogers, B. S., Caro, Mich.; Ernest E. Robinson, Mazon, Ill.; Alvin O. Rustad, Dalton, Minn.; Arthur E. Rude, Davenport, Wash.; Geo. C. Rasmussen, Harlan, Ia.; Albert B. Ritter, Pennsburg, Pa.; Robt. Augustus Reinhard, Reeseville, Wis.; Olen G. Ruffcorn, Defiance, Ia.; N. M. Repp, Perry, Ia.

Wm. Earl Stribling, Earlham, Ia.; Gearhardt C. Stahl, Chicago, Ill.; James Reid Shand, Honolulu, H. I.; Thos. Alvin Simpson, Milburn, Ky.; Henry J. Schwartz, Paris, Ky.; Wendell Smith, Pontiac, Mich.; H. A. Smothers, Owensville, Ind.; Loys B. Shireman, Richland Centre, Wis.; Herbert Silverwood, Tyn-

dall, S. D.; Hermon Richard Schwarze, Greenwood, Wis.

Chas. E. Titus, Rhodes, Ia.; Theodore C. Tiedebohl, Jr., Chicago, Ill.

Edward J. Watters, Calumet, Mich.; Chas. A. Weber, Reading, Pa.; Chas. David Williams, Odebolt, Ia.; Frank Emil Williams, Odebolt, Ia.

Honor Class.—C. W. Anderson, Thos. E. Anderson, Wm. Henry Dreher, Oliver Perry Dickson, Bruce H. Edgington, Otto C. Faulbaum, Geo. A. Gettelman, Wm. K. Howard, Robert Jas. Hight, W. G. Kupper, John E. Klem, Francis J. Kennedy, S. B. Moon, Edwin Orton Odell, Edward T. Playne, Edwin Henry Pease, Warden W. Parkinson, Arthur B. Rogers, B. S., Jay Wilson Reeder, Wendell Smith, H. A. Smothers, H. R. Schwarze, T. C. Tiedebohl, Jr., Edward J. Watters, Chas. David Williams, Frank Emil Williams.

KANSAS CITY VETERINARY COLLEGE.

The graduating exercises were held on Tuesday evening, March 26th, in the large auditorium of the Central High School. The evening was a pleasant one and a large number of the friends of the graduating class and the college graced the occasion with their presence. The Faculty address was made by the Hon. Robt. J. Sloan, a masterly orator. The President of the College Board, Dr. R. C. Moore, conferred the Doctorate degree on the members of the class in his usual happy manner. The class response to the presentation address was made by Ralph E. Naylor in a spicy, brilliant speech, which found a responsive chord in his listeners. A very pleasing musical program was provided by the students of the college.

The following named gentlemen were granted the degree of Doctor of Veterinary Science:

William A. Anderson, St. Paul, Minn.; James E. Bacus, Harper, Kans.; Frank M. Baldwin, Centralia, Kans.; Irwin E. Barr, Savannah, Mo.; Elbert M. Bates, Alva, O. T.; Francis S. Bingham, Kansas City, Kans.; Benjamin W. Boyd, Esther, Mo.; Z. Carl Boyd, Esther, Mo.; Clinton H. Bugbee, V. S., Keene, N. H.; Henry Burke, Lima, Mont.

Delwin M. Campbell, Meriden, Kans.; Lawrence P. Carstenson, Leigh, Nebr.; Lawrence G. Clark, Nevada, Mo.; Burton W. Conrad, B. Sc., Sabetha, Kans.; Charles M. Corbett, Bayard, Ia.; Clive Daly, Birmingham, Ala.; William A. Davidson, Leavenworth, Kans.; Benjamin F. Davis, Ft. Scott, Kans.;

Allen R. Douthitt, Delta, Colo.; Charles W. Dunn, Paola, Kans.

Howard C. Eliot, Appleton City, Mo.

Hugh Fay, St. Paul, Nebr.; Harrison E. Foster, Fall City, Nebr.

John T. Gaston, Kansas City, Mo.; Benjamin F. Gooch, Browning, Mo.; Harry Grafke, Kansas City, Kans.; William G. Gregory, Plano, Texas.

William J. Hart, Wetmore, Kans.; John F. Hemphill, Arlington, Ore.

J. Ellis Jennings, Shelton, Nebr.; Chas. A. Jerome, Rapid River, Mich.; Elmer C. Johnson, Waldron, Kans.; Robert W. Jones, Moline, Ill.; Thomas B. Jones, Wichita, Kans.

Harry E. Kingman, Boulder, Colo.; Joseph E. Kline, Lamar, Mo.; Virgil W. Knowles, Appleton City, Mo.; John S. Koen, Kansas City, Mo.

Chas. Labash, Passaic, N. J.

Edgar N. LaRue, Marshall, Mo.; Elmer Lash, St. Joseph, Mo.; Frederick J. Lauman, St. Louis, Mo.; Cyril V. Liggett, Peculiar, Mo.; William S. Lowe, Phœnix, Ariz.

Ellis E. McCoy, Ashland, Nebr.; Aaron B. Magill, Blue Rapids, Kans.; S. Benton Manning, David City, Nebr.; Arthur F. Meredith, Kansas City, Kans.; George Morris, Council Grove, Kans.

Joseph E. Nance, Lawton, Okla.; Ralph E. Naylor, Garland, Wyo.; Wm. Oscar Ney, Lake Arthur La.; Clarence L. Norris, North Bend, Nebr.; Ralph E. Noyes, Humboldt, Kans.

L. Bruce Philpott, Brownell, Kans.; William T. Pritchard, Wisner, Nebr.

Joseph C. Reid, Kansas City, Mo.; William O. Rozell, Ottawa, Kans.; Erwin C. Ruth, Kansas City, Mo.

Clarence E. Smith, New Bern, N. C.; Robert P. Smith, Edison, Nebr.; Walter Alvin Smith, Kansas City, Mo.; Zay Shum, Clarinda, Iowa; Walter Sorrell, Dadeville, Ala.; Norman C. Spalding, Payson, Utah; William T. Spencer, Bowling Green, Ky.; Samuel L. Stewart, Albany, Mo.; Clinton L. Stults, Boulder, Colo.; Eugene J. Snyder, Kansas City, Mo.

George H. Tangemann, New Bremen, Ohio: John A. Thompson, B. Sc., Kansas City, Mo.; Robert A. Tucker, Lincoln, Nebr.

Clemence C. Walsh, Burden, Kans.; Chas. L. Wilhite, Greenfield, Ill.

INDIANA VETERINARY COLLEGE.

The graduating exercises were held on Wednesday evening, April 3, at 8.15, at the German House, Indianapolis, and there was a large attendance of friends of the graduates and school.

President George H. Roberts delivered the address and presented the diplomas, while Dean W. B. Craig awarded the prizes. There was an address by Dr. Frank B. Wynn, and the valedictory by Luther A. Thompson of the class. An orchestra dispensed appropriate music throughout the exercises, and altogether it was a delightful event.

The following received diplomas:

Eddie Victor Alexander, Judson, Ind.; John F. Allen, Greenwood, Ind.; Riley Applegate, Indianapolis, Ind.; Robert E. Barnett, Martinsville, Ind.; John Canico, Carlisle, Ind.; John E. Carson, Cicero, Ind.; Leo R. Dudley, Brookville, Ind.; Edward N. Eisenhart, Flora, Ind.; George C. Fann, Bradford, O.; Glenn D. Grogan, Oblong, Ill.; Frank E. Haworth, Indianapolis, Ind.; Leo M. Heimann, Evansville, Ind.; Clarence T. Howard, Carlisle, Ind.; Aaron V. Johnson, Borden, Ind.; Elois G. Kuy Kendall, Carmi, Ill.; John E. Lynch, Indianapolis, Ind.; Franklin C. McCoy, Orleans, Ind.; Hubert O. Moore, Indianapolis, Ind.; Wesley J. Musgrave, Dunkirk, O.; Charles E. Mummert, Young America, Ind.; Wilber Myers, Oakland, Ill.; Willard L. Northcutt, Camden, Ind.; Charles D. Owens, Westport, Ind.; Jefferson Th. Park, Mooresville, Ind.; Franklin L. Parse, Burlington, Ind.; S. C. Phillips, Sheriden, Ind.; Clarence F. Shartle, Lizton, Ind.; Luther A. Thompson, Indianapolis, Ind.

ONTARIO VETERINARY COLLEGE.

In the list of graduates of the Ontario Veterinary College, published in the May REVIEW, our attention has been drawn to the following errors: Elmore C. Gaw, *Sheffield* Vale, Que., should be *Shefford* Vale; *Sampel* J. Gibson should be *Samuel* J. Gibson; Earle B. Hewitt, *Osceola*, Wis., should be *Osseo*, Wis.; Donald T. *Keyson* should be Donald T. *Kemp;* James Henry *Krey* should be James Henry *Keown;* Orrie G. Stevens, Stamford, N. *J.*, should be Stamford, N. *Y.;* John Gray, Langdon, Alta., should be John Gray *Taylor.*

"PLEASE accept my thanks for the good you are doing for the betterment of the profession. You shall always have my good will and support."—(*E. T. Leidy, V. S., Canal Winchester, Ohio.*)

OBITUARY.

EUGENE BURGET, D. V. S.

We greatly regret to announce the death of Dr. Eugene Burget, which occurred at his home in Wadsworth, Ohio, the early part of May, after a protracted illness from carcinoma of the lower intestine, to relieve which a delicate surgical operation had been performed, though with only temporary benefit. The deceased graduated from the American Veterinary College in 1883, and for a number of years practiced on the west side of New York City, being associated with Dr. James L. Robertson. He retired from active practice about ten years ago, and returned to his old Buckeye home, where soon afterwards he was unanimously elected Mayor of Wadsworth.

In the death of Dr. Burget the veterinary profession has lost one of its most loyal and honorable members, and the world a nobleman. It is said of him that he had not an enemy and that he never harbored an evil thought of fellowman. He was a member of the American Veterinary Medical Association and a frequent attendant upon its meetings, wherever held, where he and his old mentor were familiar figures. Between these two there had existed for many years an affectionate friendship which endured to the grave, and pilgrimages from the West to the East or *vice versa* were of frequent occurrence.

BERNHARD LAMBRECHTS, M. D., V. S.

This well-known veterinarian died at his home in Granite Falls, Minn., March 20, and was at the time of his death the oldest practitioner in that state, having been born at Christiana, Norway, on April 15, 1828. He graduated from the Copenhagen Veterinary School in 1853, and served as veterinary surgeon in the Norwegian army for twelve years, and was employed by his government for some time in the eradication of contagious diseases among domesticated animals. Emigrating to America in 1867, he practiced in Wisconsin, Minnesota, Iowa and Texas. He was located at Willmar, Minn., for eighteen years, moving to Montevideo in 1890, and after practicing there for ten years located at Granite Falls, where he died. The deceased, besides holding a diploma from Copenhagen, studied for two years in Vienna, and held an M. D. degree from St. Louis.

Dr. Lambrechts was the author of several works on medicine, and held many positions of honor in both Norway and America. He was a member of the Minnesota State Veterinary Examining Board for eight years, most of the time being its President. He was the father of Dr. T. Lambrechts, V. S., of Montevideo, Minn.

JOHN CASEWELL, M. R. C. V. S.

Dr. Casewell died at Chicago, Ill., Feb. 7th, 1907, after an illness of two days, from apoplexy, aged 61 years. He was born in Shropshire, England, and graduated from the Royal Veterinary College, London, April 20, 1871, coming to the United States in 1877 and settling at Petaluma, California, where he commenced practice. After some years in practice he joined the 4th U. S. Cavalry, in which he served chiefly in New Mexico, and at the expiration of his term of service received an honorable discharge. He went to Illinois and settled in Chicago in 1885, and was appointed State Veterinarian in 1886, which position he occupied until 1892. He then engaged in general practice, his specialty being the treatment of thoroughbred horses.

Dr. Casewell was married and leaves a wife, but no children.

CORRESPONDENCE.

NEW VETERINARY SCHOOL IN CUBA.

SANTIAGO DE LAS VEGAS, April 29, 1907.

Editors American Veterinary Review:

DEAR SIRS:—On May 1st, 1907, there will be opened a private Veterinary College in Havana, Cuba, with the following staff of professors:—Dr. Francisco Etchegoyhen, of the Special Veterinary School of Madrid, Director; Dr. Honoré F. Lainé, of the University of New York, Chief of Medical Clinic; Dr. Julio Brouwer, of the National Schools of France, Chief of the Surgical Clinic; Dr. Ricardo Gómez, of the Special Veterinary School of Zaragoza, Chief of Laboratories; Dr. Francisco del Rio, of the Special Veterinary School of Córdoba, Secretary. The College is called "The Free School of Veterinary Medicine."

Yours respectfully,

N. S. MAYO.

BREEDING EXTRAORDINARY IN THE PHILIPPINES.

A letter from Dr. R. H. McMullen, who has recently returned to the United States, after an absence of about two years in the Philippine Islands, where he was connected with the Board of Agriculture as veterinarian, gives the following data concerning some interesting official documents on file in that department:

"A non-graduate named H. L. Casey, of Paris, Kentucky, accompanied a ship load of horses to the Philippine Islands in 1904, and he was afterwards assigned to veterinary duty at the Government Stock Farm in the Province of Benguet. Casey, after a somewhat varied career, resigned and returned to the homeland. From his station on July 8 last he sent to the Director of Agriculture, Manila, a telegram, copy of which is enclosed. The Director, W. C. Welborn, replied to Casey as per attached letter, a copy of which was furnished to the Hon. A. W. Fergusson, Executive Secretary of the Philippine Islands, who could not allow the opportunity to pass, so burst out into verse as submitted."

* * *

CASEY'S TELEGRAM.

TRINIDAD, July 8, 1906.

Welborn, Manila:

Another American mare had a colt last night; filly colt, also 16 pigs by American boar. CASEY.

* * *

THE REPLY TO CASEY.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS,
DEPARTMENT OF THE INTERIOR,
BUREAU OF AGRICULTURE.
MANILA, July 12, 1906.

SIR:—We have your report, dated July 8th instant, which reads as follows: "Another American mare had a colt last night; filly colt, also 16 pigs by American boar."

This beats the record. I have known an American mare to bring two colts at a time; I heard of one that brought a horse colt and a mule colt at one birth, but never before heard of one that brought a colt and 16 pigs all the same night.

Luther Burbank, the Wizard of Horticulture, has, I believe, crossed the tomato and potato and performed other wonderful

feats. I am glad it has been reserved for you to effect a cross between the horse and hog. You will go down in history as certainly coming next to the man who crossed his bees with lightning bugs so they could work all night. Who will rise up and say after this that the Agricultural Bureau is not doing anything? Respectfully,

(S) W. C. WELBORN, *Director.*

Dr. H. L. Casey,
Government Stock Farm,
Baguio, Benguet.

A true copy of the record of this Bureau received July 22, 1906.

(S) A. W. FERGUSSON, *Executive Secretary.*

* * *

THE POEM.

The pine-clad hills of cool Benguet
Where leads the road unfinished yet,
Have been the theatre where Surprise
Has pried apart our mouths and eyes;
For bounteous Nature, with her last,
Has all her former feats surpassed.
What, now, are Burbank's grafting deeds,
Marconi's stunts—whose genius speeds
A message on a wireless track,
And makes of space a "jumping jack?"
Where now does Edison hold sway,
Or radium's finder, Pierre Curie?
Does not this deed alone suffice
To render all that men or mice
Have wrought since days of Tubal Cain
Infinitesimal and vain?
No man before has seen a dam
Provide the rudiments for ham,
And not content with razor-backs
Shell out her quota for the tracks.
It seems like thistles yielding figs
To have a mare drop sixteen pigs;
And truth receives a serious jolt
To find the seventeenth a colt!
Can anything on earth compare
With this performance of the mare?
But, hold! For while we eulogize
There is another claims a prize,
And puts to shame all gone before:
I mean the potent Yankee boar.
What lowly hog did yet aspire
To ribboned fame as race-track sire?

Consult the annals of all time,
Great deeds extolled in prose or rhyme;
Delve deep in Clio's treasured store,
Exhaust encyclopedic lore,
You will not find a word or line
That tell of such potential swine.
No record yet recounts a deed
With such results from porker's seed.
Had he but lived in days gone by,
When Richard raised his voice on high
And offered kingdom for a horse,
To him he might have had recourse,
And found within his bristly loins
The link that pork and horse-flesh joins.
Where best, if not the Philippines,
Amid the piney woodland scenes
That lull the senses into rest,
Could come the genius of the West,
And show, as oft it has before,
The might of Yankee mare and boar?
Now, while we give our meed of praise
To those who would these Isles upraise,
Forget not him who planned all that,
For it was "Casey at the bat."

A. W. F.

Manila, P. I.,
February, 1907.

THE WORKING OF THE MEAT INSPECTION LAW.—In a recent interview with Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, he had the following to say of the operation of the new meat inspection regulations: "After being 10 months in force the new inspection law is giving unqualified satisfaction. Both railroads and packers are aiding us in securing thorough enforcement. Many small packers ignored the law entirely until railroad managers brought them to their senses by refusing to accept their shipments. Inspection has been withdrawn from forty-six establishments. Of these 12 were for cause, mainly on account of failure to maintain the proper standard of sanitation. Some were found to be using prohibited preservatives. Most of these establishments preferred to forfeit their interstate trade rather than stand the loss incidental to condemnation of animals and product and bear the expense of complying with sanitary regulations. This emphasizes the necessity for a thorough state or city inspection of such establishments as refuse to submit to federal inspection."

SOCIETY MEETINGS.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The meeting was called to order at the Merchants' Hotel, Minneapolis, by President Price, Jan. 9, at 2 P. M.

Roll-call showed 54 members present. The minutes of previous meeting were read and approved as read.

The President then gave his address, as follows:

PRESIDENT PRICE'S ADDRESS.

"It is with pleasure, greater than most of you may realize, that I, as one of the earliest graduate veterinarians to locate in this state, see so many members of the profession present at our meeting to-day. Looking back over the reports of the earliest meetings of the Northwestern Veterinary Medical Association, I find the membership confined to four graduated veterinarians of the Twin Cities and a couple outside of the state. In fact, we had all the graduated veterinarians of the state excepting two. The original nucleus, with one exception, the late Dr. Sermon, of Minneapolis, are still members of the Veterinary Medical Association, although its title has been changed. At that past period quacks held sway, and gave us 'young kids' the laugh as being highly scientific, but not practical. Our laugh came later and a good deal louder; but not without many an anxious contest both in court as experts, and in the field at post-mortems. You may imagine our feelings for a day and night previous to the holding of an autopsy to test our knowledge in ante-mortem diagnosis. Going up for finals at college or preparing a presidential address are nothing in comparison. With increased requirements of both matriculation and graduation, there has been a noticeably beneficial result; the old-time 'horse doctor,' addicted to good fellowship in all its most vulgar phases, has been replaced by the educated practitioner of greater refinement and better habits, whose ideal is professional success; and honesty of purpose is more considered than ultimate financial gain—a virtue sadly lacking in many paths of business to-day.

"It is not yet fully recognized by the public that *the wealth and success of a farming community and of the country gener-*

ally depends largely on the intelligence of its veterinary practitioners. In other countries enormous losses of live stock have occurred from rinderpest, contagious pleuro-pneumonia, foot-and-mouth disease, etc.; these fatal maladies have been prevented from gaining a foothold in Canada through the power vested in its now ex-chief veterinarian, Prof. Duncan McEachran, and is being looked after to-day by his able successor, Dr. Rutherford. In this country the authority vested in our chief veterinarian was more curtailed, causing greater obstacles in the duties of Dr. Salmon, who for nearly a quarter of a century ably carried out the sanitary measures of prevention and extermination of those diseases in this country, and which is being continued by his worthy assistant, Dr. Melvin. Russia, in the years 1844–45, lost over 1,000,000 head of cattle from rinderpest alone.

"Glanders and tuberculosis are two most destructive diseases insidious in their onslaught, yet brought within our ken by modern progress and the intelligent use of diagnostic agents, which enable us to discover infected animals that otherwise would defy the most careful and thorough examination.

"Tuberculosis:—The United States has less of this disease than most other countries, but it is increasing. The federal meat inspection statistics of cattle in 1895 showed 407 per million; 1901 showed 1,285 per million. Hogs in 1895 showed 29½ per million; 1901 showed 352 per million. Tests of *pure bred* cattle coming in from Canada showed 24 per cent. to be tubercular and from Great Britian 50 per cent. Phthisis (tuberculosis of lungs).—In human beings during the past 50 years the mortality has been reduced in England and Wales nearly 50 per cent., and general tuberculosis, about 40 per cent. (includes all forms). Tabes Mesenterica, 8.5 per cent.; under five years of age 3 per cent.; one year of age, *increase* 27.7 per cent.

"These statistics were quoted by Sir R. Thorne Thomas in the *Harben Lecturer*, 1898, in England. Prof. von Behring in a paper read last year claimed that boiling milk reduced its nutrient qualities, and that calves fed on it lost flesh and became emaciated. This is probably true if the milk was boiled for more than a few seconds, as coagulation of the albumen and casein would take place, but if the milk were merely brought to a boil and then removed from the fire, this would not occur and the milk would retain all its natural qualities and no coagulation take place; yet the germs would be so reduced in vitality that they could be ingested in the milk with little danger.

Milk boiled in this way forms a finely granular mass in the stomach, digesting *more* readily than raw milk, the latter forming a large curdled mass. This can readily be proved by feeding puppies, one lot on properly boiled, as above described, and the other on raw milk. Then after an hour or more killing the subjects and examining the contents of their stomachs. To me it seems to be a question *between feeding virulent milk*, or milk in which the bacilli and other germs have been rendered harmless. My own children were never allowed any but boiled milk. They are now 17 and 19 years old respectively and both are larger than their parents, vigorous and apparently in the best of health.

"If, according to the theory of many scientists the resistance to disease depends on the proper stimulation of certain glands in the body, the fact of feeding germs of reduced virulence should accomplish this result and render the system capable of resisting any moderate invasion. Yet overstimulation must be avoided as paralysis results therefrom, and germs conquer the resisting power of the system, then disease results; which, if severe, causes death; but if not, the glands, especially the ductless ones, pituitaries, thyroids, adrenals, and tripsin-forming ones, regain their function, secreting the necessary stimuli which cause destruction of the invading germs of disease and the elimination of them and their secretions from the system.

"Feeding experiments have abundantly proved the contagious qualities of milk from tuberculous cows, and to doubt its danger is an evidence of either ignorance, gross lack of knowledge of facts, or bias.

"Many other diseases of a contagious or infectious nature have been recognized, their causes elucidated and preventive measures successfully prescribed. With incompetent veterinarians these and other diseases would sweep the country from end to end, causing enormous losses to the farming communities and in many cases absolute ruin. To the veterinary profession is due the credit of the exclusion from the United States and Canada of those fearfully contagious diseases, rinderpest, contagious pleuro-pneumonia, and foot-and-mouth disease, besides others known to exist in India, China, the Philippines, and elsewhere, and the bringing under control of those contagious diseases which exist at present in this country. Let us look forward to the time when all such diseases shall belong to the history of the past and be unknown to future generations. Rinderpest, contagious pleuro-pneumonia and aphtha are un-

known to most of us to-day. As to myself, I have seen none of the latter diseases since I left the old country, nearly 35 years ago, when I remember the big pits dug for cattle, into which they were dumped by scores, covered with quicklime and dirt; and well do I recall the pleasant, health-giving, muscle-developing, anathema-exploding exercise of catching steers and cows in the open fields, lifting their hind legs and applying nitric acid and other soothing remedies to the excoriated hoofs. They stood quiet. Oh, yes, but I generally flew somewhere as did the others, when their turn came to hold the hoof. As the weather was invariably wet and the ground mushy, our appearance can readily be imagined. The greatest losses, I should state, were from the rapid emaciation that accompanies an attack of foot-rot or foot-and-mouth disease, rendering fat animals lean and unfit for marketing in a few days. The terrible days of rinderpest and human cholera bear parallel horror in my mind. In both cases burials could not be made rapid enough to dispose of the dead. Human corpses were carried past, often by drunken bearers on canvas stretchers, covered or uncovered with a sheet, according to the condition of the men carrying it. These horrible sights have been prevented, by the intelligence of our human and veterinary practitioners, from invading our homes as well as country. *How thankful we should be* can only be realized by the few who have seen the fearful havoc. *How thankful the community should be* can also be similarly stated, as those who have not seen cannot realize its awfulness.

"Rabies has now a good foothold all over the United States. Thanks to the Society for the Dissemination of Disease, called by themselves Humane Societies, who, with a few other cranks, have vigorously opposed the only successful method of eradicating this malady. I have seen muzzling enforced in England, and can state that dogs showed no objection or discomfort, when a properly fitted muzzle was put on them; on the contrary, they seemed pleased, as they knew it meant a run and exercise. Furthermore, it prevented poisoning and fighting.

"Glanders in this state is being rapidly exterminated, yet the state does not realize the danger, and the allowances made to meet the expenses are ridiculously small. Nevertheless, Dr. Ward and his worthy assistants have done splendid work in discovering outbreaks in camps where the disease exists, and destroying the affected animals. To our west glanders has spread to a most alarming extent, and is prevalent all around us, making it very difficult to keep track of affected animals brought

into the state. Quackery has enabled the disease to spread in a great number of instances, where an intelligent veterinarian would have recognized the danger and taken proper precautions, in many cases almost ruining the unfortunate owner.

"Our state authorities are too lax in prosecuting illegal practitioners, often fearing political influence, thus causing great losses to the community unfortunate enough to sustain an empiric. Active measures must be adopted to stop their illegal practice, and now is the time to do it.

"The standards of our veterinary colleges are being raised; the requirements for admission in some are of as high a standard as for medical colleges, and I hope to see all placed on an equally high basis, superintended by worthy trustees, and supplied with competent professors. It was, and is yet, often a matter of pecuniary gain. Everyone was admitted who could write and read, and this in many cases very insufficiently. Numbers, not quality, was all they desired. The result on the community can be well imagined, and the stigma placed on the profession realized. McGill University had to close its Veterinary Department for lack of competent applicants. Inferior colleges turn out inferior material. The success of the profession from any point of view depends on good colleges, where the rough material can be converted into a finished article of the finest quality.

"On individual members the success of the profession depends. Let us all try to add our quota of knowledge and strive earnestly by example to raise the standard in the state both by our actions, deeds and researches. Only last week I was told by an Eastern member that our Veterinary Medical Association reports were eagerly read and were evidence of the ability of our members; that we were considered as being among those in the van. Let us continue to earn this good and kindly tribute by both individual and united efforts for our professional advancement, by each in turn giving a few moments occasionally to investigation, preparation and presentation of scientific and practical articles at our meetings." [Applause.]

The treasurer's report showed a balance on hand of $182.70.

REPORT ON INFECTIOUS DISEASES.

Dr. Whitcomb presented the following report:

"This report is for the last six months. There were 5,795 cattle tested, of which 466 reacted. Dr. Coffeen tested 929 cattle at South St. Paul, with only five reactions. There were also 420 cattle tested on arrival in the state, with 39 reactions.

There were 474 horses tested for glanders, and 208 killed. Also 41 horses killed on arrival in the state on account of glanders, making a total of 249 horses killed. Hog cholera has appeared in the following counties: Blue Earth, Big Stone, Chisago, Carver, Douglas, Dakota, Cottonwood, Faribault, Jackson, Le Sueur, Kandiyohi, Martin, Meeker, Rock, Renville, Redwood, Rice, Washington, Watonwan, Yellow Medicine, Aitkin, and Wabasha Counties. It might be interesting to tell you that I saw a case of glanders in a man at Beardsley, Minn. We were notified that he had glanders, and I was sent there and tested his horses and found two clinical cases. At that time the man had a swelling of his left hip, but the physician suspected glanders at that time. They sent material to Dr. Wesbrook, and a diagnosis of glanders was made. From his hip it went to his instep, an abscess forming which later healed, and they thought the man was going to recover. A few weeks later there was an abscess in the right wrist, and that nearly healed up; and at this time, Dec. 31, 1906, the right arm is affected, and they expected to amputate his arm, which will probably result in death. His temperature was about 103°."

Dr. Price: In regard to infection from animals, I would state a somewhat similar instance. I met a man on the street whom I knew pretty well. This was about two weeks ago, and he said he was going to be operated on the next day, as they told him that he had tuberculosis of the arm. I said to him: "Where did you get it?" He thought he got it from a splinter off an elevator. I suggested that he helped butcher something, and he said he had helped a man butcher a calf, and the man said it had lumps in the lungs, and he had a sore on his hand at that time. I told him he had better have a microscopical examination made before the arm was taken off. The doctor had a smear made. The gland under the arm was enlarged and sore and there were pains through his chest. The microscopical examination proved that he had botryomycosis, which is a similar infection to actinomycosis, and he is now on the iodide of potassium treatment, and is very likely to be cured and not lose his arm. This shows how careless some physicians are, especially surgeons. When the man found out he was not going to lose his arm he came with tears in his eyes to thank me.

As several members of the different committees were not present, the applications for membership was next taken up.

Dr. Price: There is one application from Dr. Geo. A. Dodge, graduate University of Pennsylvania, 1904, practicing in North-

wood, Iowa. According to our by-laws we can only take members that have a license to practice in the state, but if any one will make a motion to suspend the rules we can elect him under suspension of the rules.

Dr. Whitcomb: I make a motion that the rules be suspended to elect him.

The motion was seconded and carried, and Dr. Dodge was elected a member.

The other applications were laid over until later, as many were taking the state examination.

ELECTION OF OFFICERS.

Dr. Price:—We will take up the election of officers.

The election resulted as follows:

President—Dr. Geo. McGillivray.

First Vice-President—Dr. W. Amos.

Second Vice-President—Dr. O. Rydell.

Secretary-Treasurer—Dr. C. A. Mack.

Board of Directors—Drs. C. E. Cotton, A. F. Lees, M. S. Whitcomb, J. P. Anderson and C. T. Eckles.

Dr. Price: Owing to the absence of some of the members of the committees who are to report, it is suggested that Dr. Annand read Dr. Cook's paper.

FURUNCULUS.

By J. W. Cook, V. S.

"In selecting the disease known as 'Furunculus' for a paper to be read before this association, I do so from the fact that, located as I am in the northern part of the State of Minnesota, where this disease seems to be much more prevalent than in the southern portion of the state, very many cases have come under my observation and treatment.

"Just why this disease is more prevalent in the north than in the south I am not prepared to say, possibly certain climatic conditions more conducive to the growth of the microbe producing this disease; the fact remains the same as during eight years practice in Indiana State I did not see one single case of furunculus, while here in Duluth I am seldom without from one to as many as one dozen patients suffering from this disease, and this being the case for the past seven years I have had every chance to observe and experiment with this disease and indeed for the first few years it was largely experiment, as I could find but little in veterinary literature to assist or benefit me in my work to relieve the suffering animal and get him back to work before

my client had a reasonable excuse to kick about the size of his bill (I must say as an assistant financially to the veterinarian the disease is a gem).

"This disease is no doubt due to a microbe or germ; this microbe so far as I am aware has never been isolated; I do not believe there has ever been a satisfactory bacteriological analysis made. While more prevalent in the north still its ravages are not confined to the winter months, but is more prevalent in wet weather, spring and fall; also frequently seen in midsummer as well as in winter. Infectious I also believe it to be, as I have seen as many as a dozen cases in one stable in a period not exceeding two weeks; we find it out in the lumber camps as well as in the city. One lumberman at Iron River, Wis., lost through this disease sixteen head of fine horses in a few weeks before I was called to prescribe; and I found five head affected on my arrival, but am pleased to state he lost no more horses with furunculus since that time. In every case coming under my observation I have been able to find evidence of some abrasion of the skin often so slight you may have to remove the hair with scissors or clippers to find the injury, often a mere scratch, in other cases a wound of some size, a tread or calk, or from interfering or brushing; again you will find it as a sequel to mud fever or scratches.

"*Symptoms.*—The symptoms vary according to the severity of the case and the time elapsing from the first manifestations of the disease until your assistance is requested. As a rule the disease is located below the fetlock joint, seldom located above the fetlock, but often on the inside of the fetlock, the microbe gaining admission through an abrasion at that point from the horse interfering.

"Where you find the disease from a slight scratch or abrasion of the skin, not enough in itself to produce lameness, you recognize the fact that the disease is present by the extreme lameness exhibited, also very sensitive to pressure. On making an examination you will find an inflamed area at some certain spot or place from an inch to several inches in extent, heat, redness, pain and swelling, the swelling sometimes extending well up the limb. If the subcutaneous tissue is involved, which is usually the case, you will have a temperature of 102 to 104, pulse 50 to 60, respirations quickened, and very little desire for food. If the disease has been neglected, or treatment postponed until you have open joint, as a sequel, the temperature will rise to 105 or possibly 107, pulse 80 to 100, respirations 30 to 40, a

very haggard expression, with tucked up flanks and probably death; however, such a termination is only found in an animal where treatment has been long delayed or from improper treatment.

"In milder cases there is only slight lameness, no elevation of temperature or pulse, the inflamed area limited and just the cutaneous tissue involved, with a small slough of necrotic, cutaneous tissue. In from three to five days after the first symptoms of the disease, you will notice at about the centre of the inflamed area a slight exudate, usually of a yellow gelatinous nature, tinged with blood (which if the disease is not checked rapidly increases in quantity); during the next 24 hours there will be an almost complete line of demarcation usually in an irregular circular line denoting the separation of the necrotic from the healthy tissue. This piece of necrotic tissue will either drop out or can be easily separated from the live tissue, exposing underneath an ulcerous looking cavity varying in depth according to the amount of tissue involved in the necrotic process, containing a yellow colored debris and probably a portion of a partially decomposed tendon or ligament, with a red granulated hæmorrhagic surface, that bleeds very freely on being manipulated, showing small granular-like elevations of tissue which sometimes prove to be the ends of severed blood-vessels which are possibly more capable of resisting the necrotic process of the disease or the attack of the microbes; these often burrow deep underneath the ligaments and tendons, destroying them in the process, and if not arrested eating into the capsular ligament and allowing the escape of synovia, and death is sometimes the result.

"*Prevention.*—Furunculus may be prevented to a great extent, especially in spring or fall, or during wet weather, by the teamster or stableman carefully disinfecting any wound, scratches, abrasions, calks, etc., found on horses after returning to the stable, or at the time any such accident may have occurred.

"*Treatment.*—Early antiseptic applications continuously applied will alleviate, cut short and limit the area involved in the suppurative or necrotic process, and you will have a very small slough, in what might be a very deep and dangerous slough of necrotic tissue. Oakum or cotton batting lightly bound on with a muslin bandage and kept continuously moist with a solution of bichloride of mercury, 1 to 1000, carbolic acid, 1 to 50, or any of the coal tar preparations, will be found

very beneficial. Also give a good purgative and advise a laxative diet; to counteract the fever use diuretics, also sodium sulphite in half-ounce doses, three times daily, that is, in the early stages of the disease; later use tonics, iron, nux vomica, gentian, and advise a more nutritious diet to keep up the strength of the animal.

"After the necrotic tissue has sloughed out or been removed —and I recommend the removal of all dead tissue as early as possible, which is easily done with curette, forceps and scissors— curette all the parts freely, making sure you get to the bottom of every nook and corner of the ragged looking surface. You will have a profuse hæmorrhage; arrest the hæmorrhage with a styptic pack bound on tightly for about 30 minutes, then remove the pack and apply freely with a camel's hair brush or small syringe, tincture of iodine and iron, 3 parts of iron to 1 of iodine, painting well outside the borders of the diseased part; (for this iodine and iron treatment I am indebted to Dr. Lyford, of Minneapolis, who gave us a lecture on this disease at the A. V. M. A. meeting in 1902), and I have found it more beneficial and obtained better results from this than any other remedy I have used; but I use the iodine somewhat stronger than recommended by Dr. Lyford; apply it twice per day for a few days or until the discharge ceases, also after each application of the iodine and iron use an astringent healing powder of boracic acid 5 parts, tannoform 1 part; continue using this powder until a scab forms, then apply an ointment until all is healed over. I have also found dried ferri sulph. good treatment in some cases, also bichloride of mercury, caustic solution, tr. catechu, tr. benzoin and carbolic acid, equal parts; all are more or less of value, and may be tried if the disease does not respond to treatment with the iodine and iron. Poulticing is of no benefit and must not be allowed, as I have had to destroy some fine horses that had been freely poulticed before called to attend the case; it seems to feed the microbes, and they get in their destructive work rapidly. I believe the disease is alone peculiar to the equine animal, as I have not seen a case in any domestic animals outside the horse."

Dr. Cotton: My experience with furunculus is rather widespread, I think, and I do not believe I accept Dr. Cook's paper, for I cannot agree with him in some of his statements as to treatment. I believe that these should be poulticed with an antiseptic solution until the sequestrum sloughs off. I do not believe you are justified in curetting, for when you do curette

down to the healthy or fresh tissue you simply leave a surface for reinfection, which you are bound to get when the sequestrum is not separated, but I believe in antiseptic poulticing until the sequestrum can be gotten out. I believe in soaking for an hour at a time, and then take out and put a cotton dressing on soaked in bichloride solution, placing oiled silk over it, and it will stay moist for 24 hours. As far as the internal treatment is concerned, I do not believe in a purgative. I have better results from large doses of quinine and sulphur, and after the sequestrum separates and there is a good healthy wound, follow with a dry bottom dressing with antiseptic dressing of cotton.

Dr. Lees: Why do they call this disease furunculus? Why should it not be classed as an infection from an abrasion? Why do you want to class it as a separate disease any more than any other infection from a wound or abrasion?

Dr. Cotton: The only way I can answer that is, Why do you call azoturia, azoturia? We have to have a name for it. Furunculus does not specify the disease at all. We get furunculus in any season of the year, in dry seasons, from a little bit of a scratch. Even race horses under the best of care have it, but all the pathological lesions are the same as this so-called furunculus, but they have to name everything, not only to the client but to the profession as well.

Dr. Lees: We all have cases of infection. We have them from interfering perhaps around the feet, around the part of the limb that comes in contact with the hoof, and whether there is any specific germ or virus that takes hold in those places more than they will at any other part of the body, it seems to call for some question. You can get a prick from a fork in a horse and get furunculus from that. We might call it erysipelas; there is sloughing. I think probably the local trouble of furunculus might be somewhat nearer erysipelas than any other infection.

Dr. Price: I think I can answer Dr. Lee's question. Furunculus was the name given to it by Prof. McEachran. It used to be called carbuncle of the coronary band. I remember a case at the Fort. They had no fires in the barns and we had to work out in the open, and it was 20° below zero. When I got through dressing I just went to the nearest house where I could thaw out my fingers. I drove home and had my instruments washed by the office boy, and the hobbles washed off by the barn man; in a few days we were all fit for the hospital. I got infection of my finger, a gland in my arm enlarged, and the

disease spread to the back of my neck; I never suffered such agony in my life. It was walk the floor day and night. The office boy had to be treated by the doctor, and the hired man had to be treated, and they called it carbuncles in our cases. I think under the circumstances there can be no doubt as to where the infection came from. I had to have the abscess lanced. It formed characteristic carbuncles in every one of our cases.

Dr. Lees: I think that carbuncle of the coronary band and this disease are different.

Dr. Price: Dr. Lyford, your name has been brought into this discussion, and we would like to hear from you in regard to its pathology.

Dr. Lyford: I cannot go into the microscopical biology, but think Dr. Beebe or some of the microscopical members ought to talk on that. Dr. Wilson said that it was a specific germ and that he wanted us, the first time we had an epidemic, to call him in and see if it could not be treated by hypodermic injections, as he thought it belonged to the family that is so common in pus lines, of which I was trying to think just now as you were speaking, but I think it was the streptococcus, and he believed that some line of treatment in that way could be used that would overcome the trouble. I had only a few isolated cases while he was at the University and consequently never got at it to give it a trial. You may remember, Dr. Price, that Mr. Murphy, of my class at college, was poisoned during an epidemic of this trouble. I do not believe we understand the pathology until we understand the germ that enters into it, and as I never had a chance to put that through the test I cannot state what the conditions are, but think that probably what Dr. Wilson said was the true pathology if it was ever followed out, and the germ in that way could be easily traced if thoroughly tested. Under those conditions I do not believe there is anything further to say.

Dr. Price: In regard to the symptoms shown by Mr. Murphy, do you remember them?

Dr. Lyford: It was about the time we had so much of this and also had equine small-pox, winter and spring of 1877, and it was a question which he was supposed to have. He had a crack in his lip and inoculated that by blowing his finger, which was sore, and he was quite a sight when he came to the class; it was our last year, '77, and my final year as a veterinary student; he was to enter into the discussion, and his lip was filled from his teeth to his nose. He said he was not sick, but looked as

though he was laughing all the time. It took nearly two days for the swelling to go down. He had an abscess on the finger, and also turned it to a laugh in questioning Dr. Osler regarding its cause and effect.

Dr. Annand: I have had a few cases since I went to Duluth. There is something a little more peculiar about the condition than we find from ordinary abrasion of the skin, especially in a locality where there is plenty of it. You frequently find an animal going nicely to-day and so sore to-morrow morning that it will not put a foot to the ground. You will find more or less profuse swelling from the seat of infection well up to the limb in that length of time, and, as Dr. Cook said, you have sometimes difficulty in finding the real seat of infection; you have to hunt around, and if it is any length at all it will take some time; but it will always be a little bit of a moist spot, varying in size, but usually about the size of a round lead pencil; it seems that the infection starts there, and is absorbed so readily that the connective tissue under the skin becomes highly inflamed in that length of time. The best success I have had in dealing with it since I have been there is the sooner that I can puncture a hole so I can get an antiseptic into the seat of infection the better results I get. I usually get after it so as to make an opening to get into and get the antiseptic dressing on. In regard to poulticing, Duluth is not a very good place to use poultices, consequently you see Dr. Cook's results. Dr. Cotton may have had better results here than we have. I have tried poulticing a few cases that apparently had no particular difference in appearance as far as the extent of infection or the temperature or place of infection, and I got the worst results: a larger sloughing, and the horse takes longer to heal up than where I took a small scissors and clipped away the skin and got antiseptics directly in action with the connective tissue. I get better results than to wait until nature has thrown off that necrotic condition. I think Dr. Cook's idea of the purgative is this: the horses in Duluth are required to do a great deal of work and are fed very heavily and so we have that condition that we get a quicker control of the disease by a good purgative. I get better results from purgatives than from quinine, and by getting the system cooled off I have had better results and quicker recovery from using a purgative. I have only been in Duluth since the first of May, and have not had the varied experience that Dr. Cook has had in the seven years he has practiced in Duluth. We have some men fairly versed in poul-

ticing, putting on the poulticing hot and using antiseptics, but we have had some terrible sloughs following. You will sometimes find a locality infected and then the necrotic condition of the skin the size of a quarter, and to-morrow morning you will find another one an inch from that, and sometimes they will follow one after that above and including the coronary band. We have the limb swelling clear up into the body in some cases; that is, the aggravated cases.

Dr. Neumann: Under this head I might relate a little experience with the furunculus of the coronary band. Having dealt with them a few times previously, and always finding that they covered a long period of time, practically hurting the value of the horse before it was ready for the harness, and then occasionally dying, I undertook to use a radical treatment last summer, which consisted of injection of saturated solution of bichloride of mercury, diluted with acetic and hydrochloric acids. This was a valuable mare, eight years old, that came to me last spring. I injected the joint, from which she suffered most excruciating pain. Possibly after 24 hours she began to show up more, and within three days was again eating. The fistulous openings I kept open and inserted a wad of cotton saturated with same solution into openings, leaving over night and taking out in the morning, causing a sloughing within two or three days to follow. Continued this as long as necrotic coronary tissue was left. I found that after the first side had practically granulated, by manipulating the other side with probe and finding opening possibly three inches long where if I had allowed the front sinuses to close would break on other side. I repeated treatment, and as that granulated the animal made a fine recovery, and she was back in the harness doing work within 60 days after the time of this injection. It rather appealed to me, and for that reason I mention it. I may say that my object in injecting this mare was to kill her, because I was disgusted with the treatment, especially where I had open joint, but the results were so satisfactory that I almost feel like recommending the treatment. I might say that this mare since (three months after) was sold for $125, and she is walking perfectly sound, but having a ringbone, which was in evidence at the time of injection. I think there is a complete ankylosis there.

Dr. Price: Dr. Lyford, we will call on you for your report on surgery.*

* Will be published in the July REVIEW.

DR. BEEBE'S REPORT ON AGGLUTINATION.

Dr. Beebe: I think one of the most interesting things is the work on agglutination for glanders. This test is used in place of mallein. The great advantage is that it only requires a short period of time. The test is made in the following manner: The blood is drawn in some kind of a bottle; it is usually better to sterilize the bottle, although not absolutely necessary. The better way to draw blood is from the jugular, about 10 c. c., and allow it to stand for 24 hours until the serum is well separated from the clot. Then the serum is drawn off through a pipette and 1 c. c. of this serum is diluted with 39 c. c. normal salt solution. Then an agar culture is taken and the growth on the surface is scraped off and a small amount of normal salt solution that contains a .5 per cent. solution of carbolic acid is added. This growth on the surface is then thoroughly mixed with carbolic solution and poured off into a sterile bottle. The substance is heated to 65° C. for two hours, in order to kill the germs. It is then filtered to remove all the solid parts of the culture that are present, and then this substance is diluted with salt solution that contains .5 per cent. solution of carbolic acid. It is diluted so that it is faintly cloudy. Varying amounts of the diluted serum and .3 c. c. of the suspension of *Bacteria mallei* are mixed together so that dilutions of from 1-100 to 1-1000 are obtained. The mixture is then placed in the incubator at 37° for 24 hours. If you get a reaction the organism will be thrown down on the bottom of the test tube. Usually this takes place in about twenty-four hours. There is one thing against this test, and that is serum of normal horses will agglutinate in dilutions of 1-200 and sometimes in solutions of 1-500. Of course, serum of normal horses agglutinating at 200 or 400 or 500 leaves the result rather doubtful. This method has been adopted in Austria as the efficient test. In Russia they are using it for testing the army horses, and there are a few men who have adopted it in this country, but I think we ought to try it more thoroughly before putting it into universal practice.

This winter I wish to make a large number of tests, if possible. I think this is perhaps one of the new things that has come out since the last meeting. There are several other things, rather unimportant, which I will not mention this evening.

Dr. Lees: From your solutions do you have a precipitate of the actual bacilli?

Dr. Beebe: Yes, the organisms form a sediment in the bottom of the tube.

Dr. J. N. Gould: In the case of normal condition for a horse, what is that precipitate composed of when agglutination is at 200? There are no germs there.

Dr. Beebe: This suspension we prepare contains the germs. We take a culture of glanders and put in incubator for 48 hours and then scrape the growth off and put it into a small amount of carbolic solution, and then put this in the thermostadt; that is an apparatus so arranged that it can be heated to 65° for two hours. Organisms are killed and then this is diluted with normal salt solution that contains .5 per cent. of carbolic acid until it is just faintly cloudly, and to this add the serum. In every case you would have the bacilli. You make several different dilutions.

REPORT ON LEGISLATION.

Dr. Gould: A report on this subject at each meeting is not of much value. The material is not sufficient to make a report. I do not know that we should have a report called for at every meeting. The field was gone over pretty thoroughly in July, and that does not leave anything to report at this time in particular. However, I wrote to all the other members of the committee and received two replies. One of the gentlemen could not suggest anything, and Dr. Cotton suggested that we ought to have some legislation along the lines of revoking the license of certain men who failed to report contagious diseases, and particularly glanders. I think I had a reply also from Dr. Lees, and he suggested that it was rather unadvisable to ask for any change in legislation at this time. I think as far as the Association is concerned, that it would be rather of doubtful benefit. I think that Dr. Reynolds, in his report to the Association, will bring out a few points that will be interesting along this line.

REPORT ON EMPIRICS.

Dr. Ward: In our work with glanders we find in a great many cases where we have had outbreaks of a disease, that the cases have been treated by what we know as licensed practitioners, men who are granted certificates entitling them to practice under the law of 1893. I have thought and suggested to some of the members that it might be a good idea if we could get some legislation along this line that would tend to put these people out of business. In one outbreak, which I think Dr. McDonald investigated last year, a man had lost in the neigh-

borhood of 30 horses from glanders. We found on visiting the owner that he had employed a licensed practitioner and had paid out in the neighborhood of $300 that winter and had lost 20 horses and had a number of others showing symptoms of glanders. I presume the loss to this man was close to $4000. It was suggested by the owner to this practitioner that probably the outbreak was glanders. The man who was treating them did not consider that it was, and assured the owner that it was distemper, that the animals would recover; but in spite of it they died. In another outbreak in Norman County, 16 horses were affected. A licensed practitioner had been treating those. In the original case taken to him by the owner he was asked if the trouble was not glanders. The practitioner told him no; there was no danger, and put the horse with the others; there was nothing wrong, etc. When we found the outbreak the man had lost a number of horses and had 16 or so that reacted to the test. We have experienced this same thing in quite a number of cases. In all cases those animals have been treated by these licensed practitioners. I suggest this: that some legislation be introduced making it compulsory, starting out by saying that veterinarians and local health officers should report glanders, and any man found treating a case of glanders should be deemed guilty of a misdemeanor. If a licensed practitioner treated such cases his license should be revoked and prohibited from practicing in the state. This would do away with those people, and they treat those cases for what they can get out of them. In many cases they are not capable of diagnosing glanders, and such class of people should not be allowed to practice. They are a menace to owners and everybody they come in contact with. There is not the least danger of a bill of that nature affecting the graduate veterinarian. There is not a graduate veterinarian who cannot recognize the disease. If he is in doubt he knows where he can get mallein. We could not afford to give quacks mallein because they would abuse it, and if they did use it they might tell the owner to get the horse away as quickly as he could. The bill would have no effect except on licensed practitioners. It would prevent many outbreaks of glanders that we have. It would be better for the profession in the long run.

Dr. Cotton: I would like to hear from Dr. Leech on this.

Dr. Leech: In Dr. Ward's remarks he practically covered what I suggested last summer, or my suggestion would cover the remarks that Dr. Ward made. I said I thought it a wise

thing to do to regulate veterinary practice in Minnesota, or to tack an amendment to the original law making it obligatory for every practitioner to take out an annual certificate from the Board of Examiners, having to renew every year the same as the druggists or other professions over the state, and by actual payment of one or two dollars, such a thing would be possible, and no one ought to make objection to that sort of law or such legislation. By doing so then the profession all over the state, through the Examining Board, has power to control not only licensed men but graduates. I believe there are times when graduates require some regulation as well as licentiates. I do not believe we are all perfect. I believe we are all human, and humanity is liable to err and I think it is wise legislation, but Dr. Gould thought it would be opening up the old law and defeating legislation. I believe it would be the best thing and most feasible way of controlling such practices, and believe that by the payment of these annual fees it would be a fund kept in the hands of the Examining Board to take care of needed legislation as well as other matters of expense which might come in the way of necessary legislation by the Examining Board, and by the profession throughout the state supporting it with that fund it would be all utilized for the benefit of the profession.

APPLICATIONS FOR MEMBERSHIP.

Secretary Mack then read the following applications:

J. Butters, Renville, Minn. (Ont., '94); vouchers, M. S. Whitcomb and M. F. Leffingwell.

Chas. B. Parker, Monticello, Minn. (Chicago Vet. College, '06); vouchers, M. H. Reynolds and S. H. Ward.

A. E. Hoffman, Rushford, Minn. (Kansas City Vet. Col., '06); vouchers, M. S. Whitcomb and M. F. Leffingwell.

F. E. Perkins, Ellsworth, Wis. (Chicago Vet. College, '02); vouchers, A. F. Lees and C. A. Mack.

Dr. Ward: I notice that one application is from a town outside the state. I would like to know if he has taken an examination. I understand the by-laws require that members shall be duly licensed practitioners.

Dr. McGillivray: We acted on one this afternoon under similar conditions, under suspension of the rules. We would have to take the same procedure in this case.

Dr. Lees: I make a motion that we suspend the rules and elect Dr. Perkins, of Ellsworth.

Upon a vote being taken Dr. Perkins was elected a member.

It was moved and seconded that the remainder of the applications be taken up collectively and the Secretary cast the ballot, which was done.

REPORT ON TETANUS.

Dr. Eckles: The subject of my paper is "Tetanus." On Aug. 27, 1905, I was called to see a four-year-old mare suffering from tetanus. The owner said she had been suffering for five days. I examined her front feet and found a small shingle nail. I removed the nail and put on a poultice of oil meal on the foot affected. In the poultice I put 43 per cent. carbolic acid. I, like most veterinarians, have tried every treatment heard of in other cases of tetanus. I have tried tetanus antitoxin with no favorable results. In this case I decided to try salol, and put two ounces in a pail of water, but she would not touch the water, so I made a solution of salol and sweet oil, 1 : 4. I injected one ounce of this mixture every six hours, hypodermically, in the side of the neck. At the same time I put a little salol in the drinking water. I commenced with one ounce morning and evening and increased the salol in the water and dropped off with the hypodermic injections. The first three days I saw no improvement, but on the sixth day I observed a slight improvement, and increased the salol in the drinking water until I was giving her ℥ ijss during the 24 hours. After about seven days from my first visit, the dorsal and masseter muscles began to soften. I then moved her into a loose, roomy box stall. She improved very fast from Sept. 5, and I still gave her salol in drinking water, about ℥ ij in the 24 hours, and saw her on Sept. 8. She was improving very fast. On Sept. 16, the owner moved her 11 miles, unknown to me, and on Sept. 17 I was called to see the mare on the new farm, and she was almost as bad as when I first saw her. I increased the salol until she was taking ℥ ijss during the 24 hours in her drinking water. On Sept. 23, I saw her again, and she had almost entirely recovered. She seemed as well as ever, only when moved she seemed stiff on first starting off. On Oct. 10, the owner turned her out in the yard and left her there, except at night. I will say that all cases treated with salol do not yield to treatment as readily as this particular one, but I find I have more recoveries under the salol treatment than any other treatment. I will state that I had a case of tetanus and tried tetanus antitoxin. I got two bottles and gave half a bottle in the morning and half in the evening and there was no improvement, and sent for two more bottles, and next morning gave the other bottle, etc., and I did that

until I used $12 worth and got no improvement. Perhaps I overdosed the horse, but made up my mind that I was going to give it a good trial.

Dr. Cotton: I would like to ask if any of the members ever had experience with the use of diphtheria antitoxin in tetanus. A year ago last August at the Cleveland meeting Dr. Quitman, of Chicago, mentioned it, and used it in a few cases with results. I was talking with a gentleman who returned from Rock Island, Ill., a few days ago, and he said he met a practitioner there who was having a great deal of tetanus this year, and this month was having good results with diphtheria antitoxin. The one who told me was a veterinarian, and said he was very enthusiastic, and had five cases of tetanus in his stable at that time that were convalescent. I have never used it. As far as tetanus antitoxin is concerned, Dr. Eckles certainly did not use it in excess. If you expect to get any results from tetanus, you must use it in immense quantities. I was very enthusiastic over it some years ago, and had a number of cases which would have recovered without medicine. We all have those cases where the history is that the animal is getting stiff for probably four or five days, that is, it comes on slowly. Those animals recover themselves in the majority of cases without any treatment. In my experience it sometimes takes months for those muscles to relax. For months their hind limbs will be stiff. I do not think there is any question but what you hurry a complete recovery, but you must give it in large quantities. I have two cases in mind belonging to ice companies in Minneapolis, mild cases and both working inside of three weeks. I do not hesitate with those heavy horses to give them seven to nine bottles the first day, and six to eight the second, dropping one bottle each dav until I get down to one bottle, and then stopping; and a case of tetanus that will live for nine days will get well. I think if an animal has tetanus and stays up for nine days you are almost justified in giving a favorable prognosis. I would like to hear from Dr. Beebe regarding diphtheria antitoxin.

Dr. Beebe: I heard Dr. Thomas state at the Cleveland meeting that several years ago at Hartford they had several horses highly immunized to diphtheria that became affected with tetanus and all died just as quickly as other animals. I would also like to state in regard to tetanus antitoxin, I think you will find that you observe the best benefits if used early because the antitoxin and tetanus unite with nervous matter very rapidly, that is the union between toxin and nervous system. The the-

ory is that toxin travels along the nerve trunks and unites with the nerve matter, that it is impossible to break union down between them after once taken place. In order to have antitoxin efficient it must be given very early.

Dr. Ward: I would like to ask Dr. Eckles if he puts salol in water.

Dr. Eckles: I mix salol in a bottle so owner would not know what I was giving. I mix it with water. At first the horse would not take it at all.

Dr. Beebe: I would like to ask Dr. Eckles if he has ever tried carbolic acid.

Dr. Eckles: No, I never have.

Dr. Beebe: Do you think that the carbolic acid in salol is what produces the beneficial results?

Dr. Annand: I would like to ask Dr. J. N. Gould if he has had any recent experience with tetanus.

Dr. Eckles: I would state that it was through Dr. Gould that I got my idea of using salol.

Dr. Gould: I have not had any cases favorable to treatment. All I have seen were nearly dead. I saw a case of tetanus this fall that showed the first symptoms of tetanus during the day and I was called during the evening about ten o'clock. The horse was down and was dead the next morning. The germ gained entrance on the top of the neck. I do not know whether that has any influence in hastening the disease or not, as rabies does. This case seemed to be very rapid, the most rapid I ever saw. I notice those cases which occur from nail pricks, most of them are slow, and I have seen three where I thought the germ gained entrance along the back or neck and it was quite rapid.

Dr. McGillivray: If there are no other remarks on this paper, we will call on Dr. Reynolds for his paper. (Dr. Reynolds' report was upon the subject of the State Examining Board, and was quite exhaustive. It showed the very efficient manner in which its affairs were being administered, and the benefits being derived by the profession through its operation).

Dr. McGillivray: If there is no discussion on this there is a communication from the Mayor of Mankato which the Secretary will read. Dr. Mack then read a letter extending a cordial invitation from the Commercial Club to hold its meeting at Mankato next summer. He also read a letter from the Mayor of Mankato requesting the Association to hold its meeting at Mankato this summer.

Dr. Ward: I move that we accept the invitation from Mankato and hold our semi-annual meeting at that city. Carried.

Dr. Reynolds: I would like to say that Dr. Tomlinson, of St. Peter, who was on the program and had promised an address, telephoned me to-day that he had been very unexpectedly detained at the hospital, and he regretted it very much and asked me to extend his regrets. He went on to say that if he could make amends by giving an address at some future meeting he would be very glad to do so.

Meeting adjourned.

A very interesting clinic was held at Dr. Cotton's infirmary, Jan. 10, consisting of several important operations.

C. A. MACK, *Secretary.*

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The May meeting was held in the lecture room of the New York-American Veterinary College on the evening of the 1st, with President Bell in the chair. Owing to the absence of Secretary W. Reid Blair, who was in the South, Dr. Charles E. Clayton was elected Secretary *pro tem.* The attendance was not as large as on the previous evenings during the past year, due solely to the fact that New York practitioners are greatly overworked from the epizoötic of foot cases following the long severe winter. During March and April practice was very heavy and almost wholly surgical, necessitating the dressing of foot cases all day long, so that when evening arrived veterinarians were glad of the opportunity to get what rest they could secure before beginning another day of the same routine.

After the opening business had been disposed of the President introduced Dr. Clarence J. Marshall, of Philadelphia, who spoke extemporaneously upon the subject of "The Different Methods of Destroying Pet Animals." He described the method in use by the Society for the Prevention of Cruelty to Animals, which is the generation of carbon-monoxide gas, forcing large volumes of it into a cement tank in which a number of small animals are confined, causing their rapid insensibility and death; also the system of destroying large animals by the poll-axe. While these methods were excellent in the hands of such an organization, he thought the veterinarian should have a more scientific or a different way of accomplishing the result; they were expected to adopt the most humane and rapid means of terminating life, with the least suffering. He spoke of the

well-directed pistol-ball as being as near instantaneous as any other means, but the instrument must be in the hand of an expert; and, besides, the veterinarian often encounters conditions where it is undesirable to cause the report of a gun; in the case of destroying animals suffering from contagious diseases the noise caused by the discharge of a pistol may be objectionable by attracting undue notice and the collection of a crowd of curious neighbors. For these reasons, then, some rapid method of poisoning horses is desirable. The saturated solution of cyanide of potassium injected into the jugular vein he deemed a good way of rapidly terminating life, but it requires a large amount of solution, and occasionally the death struggle is prolonged. It is difficult to pulverize the salt, and it is dangerous to handle. The ideal method is a solution of ten grains of strychnine given intravenously, which never fails to kill, and usually produces death in five to ten seconds. The principal objection is the difficulty in obtaining a solution unless by the use of a large quantity of water, which makes the method a little awkward. In the discussion which followed Dr. Marshall's excellent talk, Dr. Carlisle N. Darke, of New York City, said he had experienced the same trouble encountered by Dr. Marshall, but fortunately he had been able to overcome it. He now uses one dram of 36 per cent. acetic acid and one dram of water, and in this strychnine is readily soluble and will remain in solution. Twenty grains will easily dissolve in this quantity of fluid, making a very small injection. He uses this means entirely, and has never seen a failure. Other veterinarians detailed the means employed by them, mostly the pistol or the cyanide solution; but the general impression was that strychnine dissolved in the acetous mixture was the best.

Dr. Marshall related a peculiar experience which he has had with osteoporosis. On a certain farm near Philadelphia, where a large number of pleasure horses are cared for, there has never been an unusual number of cases of bighead until lately. About a year ago the farm changed management, and under the new *régime* wheat bran and hay were exclusively fed, the former very generously. Soon a case of osteoporosis in a seasoned horse was observed, and it was followed in rapid succession by others until there were at least thirty animals affected. His recital of this instance was for the purpose of obtaining the opinions of the members as to the relation between the ration used and the apparition of the disease. There was little to be gained, however, as each one could relate instances which

would release bran from any suspicion, and each could tell of its appearance under the most varied and contradictory circumstances. Dr. Bowers told of a certain farm where the water contained some mineral, which colored white fabrics to such a degree that it was impossible to do the family washing in it. Cases of osteoporosis turned out on this farm recovered. He promised to have the water analyzed. Almost every one contributed to the discussion, and Dr. Marshall received a hearty vote of thanks for his kindness in coming from Philadelphia to address the meeting.

Dr. Charles E. Clayton contributed a valuable report on a case of "Rabies in a Horse," which he was called to see on March 10. The animal was furious, and gnawed the flesh from his forward extremities. Before the veterinarian was called in the horse bit his two mates upon the neck—he was the centre horse of a three-abreast team. When Dr. Clayton had diagnosed the disease he had the horse shot, and placed the two injured animals under the inoculation treatment. The brain of the dead horse was sent to the Health Department for examination, but the Negri bodies were not found. Inoculation of some of the medulla into guinea-pigs reproduced the disease, and the Negri bodies were found in profusion in all of them. The horses which had been bitten did not develop rabies, and are now back into their accustomed work.

Dr. Ray W. Gannett, of Brooklyn, was to have presented a paper on the subject of "Resection of the Flexor Pedis Perforans Tendon for Infected Navicular Bursa," but at the time of the meeting the Doctor was in a contagious tent at Bellevue, where he had been conveyed about a week previously under the supposition that he was suffering from acute glanders. Dr. Gannett is one of the most promising veterinarians of this country, and the distressing news of his affliction had cast a gloom over the entire Metropolitan profession. Dr. Silkman, of the New York Board of Health (who, by the way, read a paper on the subject of "Glanders in Man" at the March meeting, which is published in this number of the REVIEW), who had made a close study of Dr. Gannett's disease, was called upon by the President, and he stated that he had just left the patient, and was glad to state that he was not a victim of glanders; that his blood had failed to agglutinate, that no bacilli of glanders had been found, but many streptococci were present in the pus from the ulcers. Since then Dr. Gannett has been discharged and has resumed his work in Dr. Geo. H. Berns' infirmary. Paul

Schmidt, of Park Avenue, New York, one of the promoters of a patent fraud known as "glanderine," who attempted to get control of Dr. Gannett's case under the pretext of curing his "glanders," has been landed in jail by the New York Medical Society, and it is to be hoped that he will be either kept there or forced to flee the country.

Dr. W. Reid Blair, who was to have presented the results of seven post-mortems on horses reacting to the agglutination method; was absent from the city, but sent down a paper on "Sarcomata," accompanied by specimens from a red fox which had died at the Zoo. The description was particularly lucid, giving a pointer as to the gross appearance of such growths, so that their nature may be suspected before the microscopical examination. He also forwarded specimens from a case of generalized tuberculosis in a cat.

The President announced that the June meeting would be given over entirely to a discussion of the subject of educational conditions of the state and the law governing the practice of veterinary medicine. It is expected that a number of prominent veterinarians from other states will be present to contribute their experience and advice, among whom are Dr. W. Horace Hoskins and C. J. Marshall, of Pennsylvania; Dr. Wm. Herbert Lowe, of New Jersey; Dr. Richard P. Lyman, of Connecticut; Dr. W. L. Williams, President of the New York State Society, and others. (R. R. B.)

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular meeting was held in Donaldson's Hall, Broad and Filbert streets, Philadelphia, on Tuesday, May 14th, Dr. B. M. Underhill, President, occupying the chair. The following members responded to roll-call:—Drs. C. J. Marshall, W. Horace Hoskins, W. H. Ridge, J. W. Vansant, W. L. Rhoads, B. Kirby, F. H. Schnider, G. S. Fuller, H. G. Black. Visitors—Dr. Noack, of Reading, Pa., Drs. S. J. J. Harger, John Reichel, and H. D. Martein. The minutes of the April meeting were read and approved. Dr. John Reichel was regularly admitted to membership, and Dr. S. J. J. Harger was reinstated.

Dr. John Reichel read his paper upon the "Agglutination Test for Glanders." He very plainly showed to the members the value of this test, particularly in conjunction with the mallein test. Quite an extended discussion followed, which was entered into largely by Drs. Noack, Harger, Ridge, Fuller, and others.

Dr. S. J. J. Harger spoke upon his experience with mallein, which experience has been very extensive lately. He described in his lucid way the local symptoms, the temperature changes and constitutional symptoms which are seen after the injection of mallein. In the discussion which followed nearly all those present took part.

Dr. Martein exhibited an Irish terrier which had had the hard palate punctured by a bone, with the result of an opening nearly an inch square remaining, which interfered with deglutition. Dr. Martein had very ingeniously closed the opening with a silver plate, and, as the plate has been in position over six months, with no bad results, the operation seems highly successful.

The meeting adjourned at 11.30 P. M., after having spent a very profitable evening. A. W. ORMISTON, *Secretary.*

BETA CHAPTER OF ALPHA PSI FRATERNITY.

The Beta Chapter of the Alpha Psi Fraternity was formally installed at the New York State Veterinary College, Cornell University, Ithaca, N. Y., on the evening of May 6. Mr. Arthur F. Schalk, of the National Council, had charge of the ceremonies. After the initiations all the members enjoyed a fraternal banquet at the Ithaca Hotel.

DO GOOD to your fellow-practitioner: Tell him about the AMERICAN VETERINARY REVIEW.

DR. A. K. DICKLE (Chicago V. C., '07) is assistant in the practice of Dr. S. E. Hershey, proprietor of the Charleston, (W. Va.) Veterinary Hospital.

THE ALPHA CHAPTER at the College of Veterinary Medicine, Ohio State University, granted honorary membership to Drs. S. E. Bennett, Paul Fischer, M. B. Lamb, Mark Francis. and several other alumni. It also extended honorary membership to Drs. Liautard, D. E. Salmon, Roscoe R. Bell, Robert W. Ellis, A. D. Melvin, W. H. Dalrymple and M. H. Reynolds.

SUGAR TO OVERCOME FATIGUE.—From France comes the news that remarkable results have been obtained by an army surgeon there from the use of sugar in overcoming fatigue in horses when overworked. About half a pound of sugar was mixed with the horses' food every day. Not only was fatigue overcome in forced marches, but horses until then useless because of their poor condition recovered normal strength and rendered good service.

NEWS AND ITEMS.

DR. M. T. BERNARD, Grand Island, Neb., recently sustained a fracture of the tibia, but is doing well.

DR. W. A. WOLCOTT, M. D. C., Plymouth, Wis., will soon lead to the altar Miss Alice E. Liese, of the same city.

DR. GUY A. ROBERTS, Raleigh, N. C., was married on the 15th ult., to Miss Emily Clara Steinmetz, of the same place.

DR. G. E. MCEVERS has been appointed Veterinary Surgeon to the Chicago Fire Department at an annual salary of $2500.

A NEW EDITION of 250,000 copies of the "Special Report on the Diseases of the Horse" was authorized by Congress at its last session.

DR. FRED. C. CATER, who recently returned to the States after service in the Philippines, has joined the B. A. I., and is stationed at Southwest City, Mo., where he is engaged in Texas fever work.

DR. J. B. CAUGHEY, formerly of Columbiana, Ohio, but who is now of the B. A. I. force, is located at Pittsburg and Alleghany, Pa., and not at Cincinnati, Ohio, (as stated in the May REVIEW).

A LETTER from Dr. W. A. Hayes, of Jackson, Mich., under date of April 16, states that for three months rabies has been quite prevalent in that locality, and many dogs, cats, and other animals have been destroyed. Seven persons who had been bitten by dogs, took the Pasteur treatment at Ann Arbor.

JAMES CLARK, F. R. C. V. S., Examiner in Therapeutics and Toxicology, and late Examiner in Diseases of Cattle to the Royal College of Veterinary Surgeons, died at Coupar Angus, N. B., April 25. He was born in 1847, graduated at Edinburgh in 1868, and obtained the Fellowship in 1887.

DR. ADOLPH EICHHORN, B. A. I., Washington, D. C., sailed for Europe on April 30, and after a short stay in Hungary with his relatives, was to proceed to do special work for the Bureau in Hungary, Austria, Germany and France. It is expected that he will return to the United States the early part of July.

THAT OUGHT TO SETTLE IT.—Manager Perry, of the American Car Sprinkling Company of Worcester, will be here Monday evening to arrange the details of his sprinkling contract. It was so dusty on Main street this afternoon that some of the business men sprinkled the street in front of their places with a horse.—(*New Britain, Conn., Herald.*)

THE resolution to pasteurize the milk supply of New York City, was lost before the Board of Aldermen on May 21, by a vote of 29 to 20. Alderman Everson, of Brooklyn, himself a physician, in speaking against the resolution, said that the way to get pure milk was to inspect the cows at the dairy farms and to require cleanliness there.

DR. W. REID BLAIR, Pathologist to New York Zoölogical Park, has been sojourning in Virginia, for the past month, his physician having peremptorily ordered him to relinquish work for a time, and seek rest and diversion among the pine forests of the Old Dominion. Dr. Blair is an incessant worker, and his ambition has gotten the better of his judgment.

DR. A. C. KNAPP, of Bridgeport, Conn., had an exciting experience a few weeks ago with a rabid dog in a street of that city. The animal had a considerable portion of the population at bay, when the veterinarian arrived upon the scene. He made a lasso and dexterously encircled its neck, afterwards confining it under a wooden box and destroying it with chloroform.

DR. A. T. KINSLEY, professor of pathology and bacteriology at the Kansas City Veterinary College, made an extended trip during May, visiting most of the colleges of the country in quest of information as to how his subjects are dealt with by other teachers, with the object of bringing his own course up to the hour and omitting nothing which would be of benefit to his students. He made a pleasant call upon the REVIEW about the middle of May.

THE last Kansas Legislature appropriated $80,000 for a building for the Veterinary Department of the State Agricultural College at Manhattan. The college has an abundance of good building stone on the college farm and with labor at a comparatively low rate this appropriation will provide a magnificent structure. This is another instance showing that veterinary knowledge is being more fully appreciated as an economic factor in agriculture.

PROF. L. VAN ES, of the North Dakota Agricultural College, Veterinary Department, is at present in the city of The Hague, Holland, where he is taking a special course at the Government Serum Institute there. He left the United States April 1 with his little son, and expects to visit and attend lectures (not the Peace Conference) at The Hague Institute, as well as at the veterinary schools of Amsterdam, Berlin, Dresden, Vienna, Budapest, and Paris. He expects to return early in the fall to resume his professional duties at Fargo.

THE KANSAS CITY VETERINARY COLLEGE has doubled its ground holdings and is planning the erection of other college buildings. The management is determined to provide every facility for preparing its graduates to meet the ever-widening requirements of the veterinarian. Among the structures to be erected will be a pavilion for giving instruction in the judging of live-stock, and the practical study of the breeds of animals, etc.

DR. RAY W. GANNETT, house surgeon of the infirmary of Dr. George H. Berns, Brooklyn, N. Y., who suffered a serious attack of blood-poisoning (thought for a time to be acute glanders, and for which he was isolated in a contagious ward at Bellevue Hospital, New York City), has apparently recovered and has resumed his duties in Brooklyn. Many large ulcers of the hands were removed by excision. Dr. Gannett is a graduate of the New York State Veterinary College, class of 1905, and has a brilliant future as a surgeon.

A V. S. UNDER A SERIOUS CHARGE.—*Dayton, Ohio, April 24.*—Dr. A. V. Mann, the veterinary surgeon who was arrested by Fire Marshal Ambrose on a charge of burning his stable, was released to-day on bond. His attorneys, Bickley & Bickley, issued a statement for him, in which he claims that the charges are false, and that he will prove his innocence. Dr. Mann's parents are prominent and wealthy, and will make a determined effort to clear their son of the charge brought against him.—*(Cincinnati Enquirer.)*

DR. W. H. DALRYMPLE, of the Louisiana State Agricultural College and Experiment Station, read an extensive paper on "The Importance of Meat and Milk Inspection" before the Second Annual Conference of Officers of Health under the auspices of the Louisiana State Board of Health, at Opelousas, May 2-4. His paper was illustrated by stereopticon slides, showing some of the organisms which are commonly carried by these important articles of food, such as cysticerci, trichinæ, tubercles, bacteria of different kinds, etc. Dr. Dalrymple was also selected to open the discussion on an important paper on "Serums and Antitoxins." Through such channels the veterinary profession is lifted into higher spheres in public opinion.

THE KANSAS PRACTICE LAW.—As previously announced in the REVIEW, Kansas veterinarians were successful before the last session of the Legislature in securing the passage of a law to regulate the practice of veterinary medicine in that state. This law went into effect on March 2, and to carry out its pro-

visions the Governor has appointed the following gentlemen to constitute the Board of Examiners: President, Dr. Hugh S. Maxwell, of Salina; Secretary, Dr. D. O. Knisley, of Topeka, and Dr. T. W. Hadley, of Kansas City. The struggle to secure this law dates back over four years, and final success was due to the persistency of only a few of the members of the profession, chief among whom was the energetic Secretary of the State Association, Dr. Maxwell, who fought on when others abandoned the struggle as hopeless. It is amazing what can be accomplished by so few workers when there is faith in the cause and confidence in ultimate success.

THE MINNESOTA LAW STRENGTHENED.—Minnesota veterinarians have secured the passage of a new veterinary practice act, practically as asked for, and now claim to have as good as the best. The more important new features of the revision are as follows: One appointment to the Examining Board each year, instead of all members changing at the same time. Date of the examination is changed to the Tuesday preceding the second Wednesday of January and July. In the matter of colleges whose graduates are eligible to examination, the word "reputable" is inserted, giving the Board discretionary power. All certificates are hereafter subject to annual renewal, provision being made for renewal of all certificates on or before May 1 of each year. The Board is given authority to revoke or refuse renewal for gross moral or professional misconduct. Certificates are now to be recorded in the county or counties where a man practices, instead of in the county where he resides. It is not necessary to record annual renewals. Prosecution may now be either civil or criminal, and penalty either fine or imprisonment.

PROFESSOR KITT RETIRED.—The news from Munich reporting the resignation and retirement of Prof. Kitt will be deeply regretted by the veterinary profession. Prof. Kitt held the chairs of pathological anatomy, general pathology and infectious diseases in the Veterinary High School of Munich. He was engaged for 27 years as teacher and investigator and is still in his best years of active life. His extensive literary contributions of the last years indicated that considerable work was yet to be expected from his active mind. All who know his text-books, his works on pathological anatomy and bacteriology, will certainly regret his retirement from his active field, which assured him a lasting admiration from the medical professions. His works are distributed all over the world, many

being translated into different languages. His scientific activity received many recognitions; among the numerous distinctions he also received the honorary doctor degree from the University of Munich. The cause for his request for retirement is said to be a declining of his eyesight, which naturally would hinder him in the work of his special branches of medicine.—[*A. E.*]

FOR A NEW BREED OF COACH HORSES.—President Roosevelt's administration is likely to be long remembered by breeders and all interested in the improvement of American carriage horses for the steps which have been taken through the Department of Agriculture at Washington to foster the native trotting bred coacher. Following up the commendable enterprise of establishing a government stud at the Colorado experiment station, the department is now working out a project which promises to be of even greater and more far reaching importance to horse breeding interests. In coöperation with the American Association of Trotting Horse Breeders it is proposed to institute at state and national fairs throughout the country a series of show ring competitions which will give to native breeding stock of the heavy harness type the same recognition now accorded to coach horses of the various foreign breeds. Uniform classes, governed by conditions either drafted or approved by the Bureau of Animal Industry, will be arranged for stallions, mares and colts of the fashionable carriage type at all the leading fairs in the horse breeding sections. When these classes once become established at the big exhibitions it is believed that district, county and minor fair associations will quickly follow the lead in adopting this classification for their prize lists, and thus make it almost universal throughout the United States. The plan prepared by George M. Rommel, of the Bureau of Animal Industry, is broad in its scope, and so drawn up that horses of American blood, whether standard trotters, Morgans, or saddle bred horses, will be eligible to compete. The purpose is to establish or evolve a uniform type or breed of American carriage horses, and in laying the foundation the department proposes to throw the doors wide open to these three closely related native families and let the best individuals win. Competing under uniform conditions in all show rings, it is believed that horses fairly uniform in make and shape will be selected as the prize winners, and that the continued mating of these winners will, in a comparatively short time, result in fixing the type and establishing the new breed.—(*New York Herald.*)

VETERINARY MEDICAL ASSOCIATION MEETINGS.

Secretaries are requested to see that their organizations are properly included in the following list.

Name of Organization.	Date of Next Meeting.	Place of Meeting	Name and Address Secretary.
American V. M. Ass'n.....	Sept. 10-13, '07.	Kan. City, Mo.	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.....	July, 1907.	Asbury Park.	W. H. Lowe, Paterson.
Connecticut V. M. Ass'n.....	Aug. 6, 1907.	New Britain.	B. K. Dow, Willimantic.
New York S. V. M. Soc'y...	Sept., 1907.	New York City	G. T. Stone, Middletown.
Schuylkill Valley V. M. A. .	June 19, 1907.	Reading, Pa.	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.....	Monthly.	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	Call Exec. Com.	.....	E. L. Lewis, Waxahachie.
Massachusetts Vet. Ass'n.....	Monthly.	Boston.	F. J. Babbitt, Lynn, Mass.
Maine Vet. Med. Ass'n.....	.....	.....	R. E. Freeman, Dexter.
Central Canada V. Ass'n.....	July, 1907.	Ottawa.	A. E. James, Ottawa.
Michigan State V. M. Ass'n...	State Fair Week	Detroit.	Judson Black, Richmond.
Alumni Ass'n N. Y.-A. V. C..	April, 1908.	141 W. 54th St	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n.....	July, 1907.	Springfield.	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad.....	.....	.....	S. Beattie, Madison.
Illinois V. M. and Surg. A....	.....	Decatur.	C. M. Walton, Rantoul.
Vet. Ass'n of Manitoba	Not Stated.	Winnipeg.	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n...	.....	.....	C. J. Fleming, Winston-Salem
Ontario Vet. Ass'n.....	Summer 1907.	Ottawa.	C. H. Sweetapple, Toronto.
V. M. Ass'n New York City...	1st Wed. ea. mo	141 W. 54th St	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n.....	.....	Columbus.	W. H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n...	1st Wed. ea. mo	Pittsburgh.	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	.....	.....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n...	July, 1907.	Rochester.	J. H. Taylor, Henrietta, N. Y.
Iowa Veterinary Ass'n.....	.....	.....	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n..	July 10-11.	Mankato.	C. A. Mack, Stillwater.
Pennsylvania State V. M. A...	.....	.....	C. J. Marshall, Philadelphia
Keystone V. M. Ass'n.....	Monthly.	Philadelphia.	A. W. Ormiston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n...	1st Mon. in June	Denver.	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n.....	June, 1907.	Kan. City, Mo	B. F. Kaupp, Kansas City.
Rhode Island V. M. Ass'n....	June and Dec.	Providence.	T. E. Robinson, Westerly, R. I
North Dakota V. M. Ass'n....	.....	.....	C. H. Martin, Valley City.
California State V. M. Ass'n...	Mch. Je. Sep, Dc	San Francisco	Chas. Eastman, San Luis [Obispo.
Southern Auxiliary of California State V. M. Ass'n....	Jan. Apl. Jy, Oct.	Los Angeles.	J. A. Edmons, Los Angeles.
South Dakota V. M. A.....	.....	.....	E. L. Moore, Brookings.
Nebraska V. M. Ass'n.....	.....	.....	Hans Jenson, Weeping Water
Kansas State V. M. Ass'n....	Jan. 1908.	Manhattan.	Hugh S. Maxwell, Salina.
Ass'n Médécale Veternaire Francaise "Laval,".....	1st & 3d Thur. of each month.	Lect. R'm Laval Un'y Mon.	J. P. A. Houde, Montreal.
Province of Quebec V. M. A...	.....	Mon. & Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n.....	Nov. 19, 1907.	Not decided.	D. A. Piatt, Lexington.
Washington State Col. V. M. A.	Monthly.	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association.	An'l Jan., '08.	Indianapolis.	E. M. Bronson, Indianapolis.
Louisiana State V. M. Ass'n..	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n.....	2d Thu. ea. mo.	St P.-Minneap	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A....	.....	.....	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n..	.....	.....	J. C. Robert, Agricultural Col.
Georgia State V. M. A.....	July 4, 1907.	Atlanta.	L. C. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn..	June, 1907.	Philadelphia.	B. T. Woodward, Chicago.
Virginia State V. M. Ass'n....	.....	.....	S. C. Neff, Staunton.
Oklahoma V. M. Ass'n.....	.....	.....	W. H. Martin, El Reno.
Veterinary Practitioners' Club..	Monthly.	.....	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia...	Last W. ea. mo.	2116 14th St.,	F. M. Ashbaugh, Wash., D C
B. A. I. Vet. In. A., Chicago.	2d Fri. ea. mo.	Chicago.	R. J Stafford, U. S. Yards.
Arkansas Veterinary Society...	June, 1907.	Little Rock.	B. H. Merchant, Little Rock
York Co. (Pa.) V. M. S.....	June 4.	York, Pa.	E. S. Baustícker, York.
Philippine V. M. A.....	June, 1907.	Manila.	R. H. McMullen, Manila.

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